

Meeting Minutes Transmittal/Approval
Unit Managers' Meeting
200 Area Groundwater and Source Operable Units
1200 Jadwin, Richland, Washington
March 20, 2008

APPROVAL: *Larry Romine* Date: 4-16-08
Larry Romine, 200 Area Unit Manager, DOE/RL

APPROVAL: *Arlene C. Tortoso* Date: 4/23/08
Arlene Tortoso, 200 Area Assistant Manager, DOE/RL

APPROVAL: *Craig Cameron* Date: 5/2/08
Craig Cameron, 200 Area Unit Manager, EPA

APPROVAL: *John B. Price* Date: 4-30-08
John Price, 200 Area Unit Manager, Ecology

"HFFACO Action Plan Section 4.1 requires signature of agreements and commitments made during the Unit Manager Meeting. Approval of these minutes documents approval of agreements and commitments documented in Attachment 3 to these minutes. Approval does not apply to any other attachments, which are included in these minutes for informational purposes."

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Minutes of the 200 Area Unit Managers' Meeting of March 20, 2008 are attached.
Minutes are comprised of the following:

Attachment 1	Agenda
Attachment 2	Attendance Record
Attachment 3	Agreements and Issues List
Attachment 4	Action Item List
Attachment 5	Operable Units and Facilities Status
Attachment 6	200-UP-1 Uranium
Attachment 7	200-UP-1 Technetium-99
Attachment 8	Spill Sampling Round 1 graph
Attachment 9	Spill Sampling Round 1 analytical data
Attachment 10	Spill Sampling Round 2 graph
Attachment 11	Spill Sampling Round 2 analytical data
Attachment 12	Photo: Removing the top 1-ft of soil across the entire spill area.
Attachment 13	Photo: Removing the top 1-ft of soil across the entire spill area.
Attachment 14	Photo: Removing the top 1-ft of soil across the entire spill area.
Attachment 15	Photo: Removing the top 1-ft of soil across the entire spill area.
Attachment 16	Photo: Removing the top 1-ft of soil across the entire spill area.
Attachment 17	Photo: Removing the top 1-ft of soil across the entire spill area.

Attachment 18	Approval of the Carbon Tetrachloride Expedited Response Action Soil Vapor Extraction System Operating Plan for FY 2008
Attachment 19	200-PW-1 OU: 3 Narrow Diameter Vapor Extraction Wells (monthly monitoring results)
Attachment 20	Figure 1: Wells 299-E33-205, 299-E33-342, 299-E33-343, 299-E33-344 and 299-E33-345 Location Map
Attachment 21	216-55, Geophysical Logging Maximum Readings
Attachment 22	BCCA Downposting
Attachment 23	Change Notice for Modifying Approved Documents/Workplans In Accordance with the Tri-Party Agreement Action Plan, Section 9.0, Documentation and Records (TPA-CN-209)
Attachment 24	MTCA Remedial Investigation/Feasibility Study presentation material

200 AREA UNIT MANAGERS' MEETING AGENDA

1200 Jadwin/Rm 1-C-1

March 20, 2008

8:30 AM

SOURCE REMEDIES AND D4

- 200-CW-3
- BC Control Area
- 200-UW-1
- Facilities (D4)
- Recap Agreements, Issues and Action Items

GROUNDWATER and SOURCE OPERABLE UNITS

- 200-UP-1, 200-CS-1 and 200-CW-1 Group
- Supplemental Characterization Model Groups 2/4/6 and 5
- 200-BC-1, 200-IS-1, 200-CW-5 and 200-SW-1/2 Group
- 200-ZP-1, 200-PW-1/3/6 Group
- 200-MW-1 Group and 200-PW-2/4
- 200-MG-1/2 and Eco. Group
- 200-BP-5 Group and 200-PO-1
- 200-SC-1 Group and 200-LW-1/2 Group
- 200-TW-1 and 200-PW-5
- 200-TW-2 Group
- 200-UR-1
- Recap Agreements, Issues and Action Items

Presentation on MTCA investigations at US Ecology – Jennifer Ollero (see Attachment 24)

200 Area Unit Managers' Status Meeting
March 20, 2008

Please print clearly and use black ink

PRINTED NAME	ORGANIZATION	O.U. ROLE	TELEPHONE
J. S. Decker	FH	SC-1/LW- 1	376-4416
DG Black	FH	TSA	376 0740
J Vanni	ECOLGY	RCRA Permitting	372-7930
Jennifer Ollero	Ecology	SWZ Finc Transm	372-7988
Mark Byrnes	FH	EP-1 Project Manager	373-3996
Wade Woolery	DOE RL	DD Project	3722889
Arlene Tortos	DOE-RL	tech/LWS	373-9631
Jerie Sauer	FH		376-3760
John Price	Ecology	Proj Mgr	372-7921
Bryan Foley	DOE-RL	"	376-7087
Shawney Simon	DOOE		(541) 963-0853
Stan Sopczyk	NPT ERUM		208-843-7375
R Wolden	FH	ECO	2-2426
GB Christensen	FH	DC CRIS/Control	3-4160
Deborah Singleton	Ecology		
Chris Wollam	FH	UR-1	373-1587
Laura Buehler	EPA	TWI, PW-S	376-9466
Ray Thomas	FH	BP-5	373-3907
Tom Watson	FH	Central Plateau	376-5450
Virginia Rohay	FH	200 - Pr-1	373 8803

200 Area Unit Managers' Status Meeting March 20, 2008

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PRINTED NAME	ORGANIZATION	O.U. ROLE	TELEPHONE
R. 811880	FH		373-3235
M. VOOOD	DOE	PM	376-8776
Jim Rasmussen	YAHSGS		376-0304
Janice Williams	FH	Facilitator	372-3553
K. Michael Thompson	RL	Acting FPD	373-0750
Caren Berlin	FH	PM	374-2389
Rod Lobo S	EPA		376-3749
John Winterhalter	FH	ECO	372-8144
MIKE Hickey	FH	CW-5 IS-1	373-3092
Ron Bruke	FH	CW-1 CS-1	376-2667
Craig Cameron	EPA		376-8665
Michael Burns	FH	D&D	372-9078
Tim Crane	FH	D&D	376-9789
Phil Rogers	FH	PM	376-5867
Jeff Lyn	Ecology		
R. D. H. Delval	DOE-RL		373-7626
J.D. Commons	FH	ZOO-PO-1	372-2484

**Issue Resolution Meeting
Agreements and Issues List
March 20, 2008
200 Area Unit Managers' Meeting**

Agreement: Approval of the Carbon Tetrachloride Expedited Response Action for Soil Vapor Extraction System Operating Plan for FY 2008 (**Attachment 18**)

Agreement: TPA-CN-209 for the 200 Area SC-1 Waste Control Plan (SGW-36088, Rev 0) has been approved by DOE and EPA, dated 3/11/08 (**Attachment 23**).

Agreement: Ecology and DOE agree to close out Ecology comment #25 on the 200-IS-1 RI/FS work plan. Comment #25 states Ecology's expectations for risk assessment exposure scenarios in the 200 Area Core Zone. Ecology and DOE agree that the Ecology comment is a global issue beyond the scope of the 200-IS-1 work plan. Ecology expects to send a letter to DOE to initiate more global discussions of the issue.

This agreement closes out the last unresolved Ecology comment on the 200-IS-1 work plan, and terminates any need for TPA Project Manager level dispute about the work plan.

Agreement: EPA concurs that the excavation to clean-up the groundwater spill at 200-ZP-1 can be backfilled **at this time**.

Issue: Ecology and EPA are concerned that DOE has not been timely in starting field activities to support Multi-Increment Pilot Studies. Ecology endorses MIS sampling under the CERCLA removal action proposed for 200-MG-1/2. However, Ecology was expecting early initiation of field work, to support formal approval of the MIS approach for waste site closeout. Ecology takes the position that the schedule delay on this activity could cause some regulatory compliance risk for RL, and could result in increased costs for RL.

Issue: Ecology and RL are not in agreement on the ROD schedule for 200-UW-1.

Delegations for March 20, 2008 UMM meeting:

EPA	Craig Cameron
Ecology	John Price & Jennifer Ollero for John Price
DOE/RL	Arlene Tortoso for Briant Charboneau
	Margo Voogd for Larry Romine

OPEN ACTION ITEM TRACKING

Action #	Action/Subject	Assigned To	Owed To	Assigned Date	Original Due Date	Adjusted Due Date	Status
107	Draft an agreement for the Parties as to Ecology expectations for 200-MG-1/2 RTD sites (no modeling will be required to show protectiveness of groundwater and the expectation is that all contamination will be removed).	Ecology-Price	RL-Charboneau (Roddy)	1/16/08	2/21/08	4/1/08	Discussions continue.
113	Provide the anticipated transmittal date for 200-UW-1 STOMP modeling approach document	RL-Leary	Ecology-Price	3/20/08	4/16/08		
114	RL to set up a meeting with Ecology on the permitting approach for NRWL.	RL-Roddy	Ecology-Price	3/20/08	4/16/08		

CERCLA 5-Year Review Action Items

Action #	Action/Subject	Assigned To	Assigned To	Due Date	Status
13-1	Complete a data quality objective process and sampling plan to further characterize the technetium-99 groundwater plume near T Tank Farm.	Fluor Hanford			Complete
14-1	Assess treatment options to address technetium-99 near T Tank Farm.	Fluor Hanford			Complete
15-1	Complete data quality objective process and sampling plan to further characterize the high soil conductivity measurements detected at B/C cribs and trenches.	Fluor Hanford			Complete
16-1	Increase the pump size in 200-ZP-1 extraction wells 299-W15-45 and 299-W15-47.	Fluor Hanford			Complete
17-1	Evaluate expanding the soil-vapor extraction operations. Also, specifically review converting former groundwater extraction well 299-W15-32 to a soil-vapor extraction well.	Fluor Hanford			Complete
18-1	Prepare an explanation of significant difference for 200-UP-1 Interim ROD	Ecology		6/1/2008	Ecology working with EPA.

200 AREA UNIT MANAGERS' MEETING OPERABLE UNITS AND FACILITIES STATUS

March 20, 2008

D&D OUs

200-CW-3 - EPA Lead

- The SAP and RAWP are in development for "remaining sites" 216-N-1, -4, and -6, one solid waste site, two UPRs and three pipelines.

Rail Car Disposition Options Study

The railroad car disposition options study is in progress. Target completion date is September 30, 2008.

Waste Sites in Proximity to 200-CW-3 (200 North Area)

- TPA change request (C-07-07) was entered into the administrative record. This change request authorizes transfer of waste units 200-N-3, 2607-N, 2607-P, 2607-R, UPR-200-N-1 and UPR-200-N-2 from the 200-MG-1 OU to the 200-CW-3 OU and the assignment of waste units 600-285-PL, 600-286-PL and 600-287-PL to the 200-CW-3 OU.

EE/CA for Buildings 212-N, P, R - The development of the EE/CA has been initiated.

200-BC Control Area (BCCA) – Ecology Lead

- BCCA EE/CA 30-day Public Comment period was initiated on 2/25/2008.
- Cultural/Historical/Biological/Ecological reviews for BCCA Zone A are scheduled to start on April 7th, 2008.
- MARSSIM Closure Strategy – DOE/RL is reviewing/commenting on latest revision of the MARSSIM memorandum from Ecology.
- The field investigation for the Cultural/Historical/Biological/Ecological reviews to support the haul road upgrades was performed. The report is undergoing review with completion targeted for April 13, 2008.
- The RAWP and Action Memorandum for the BCCA planned removal action is under development.

200-UW-1 Ecology

- ROD – DOE's revised baseline schedule has completion in FY'12. Ecology is not in agreement with DOE's change and believes it is inconsistent with the TPA Action Plan **(See UW-1 Issue on Attachment 1, Agreements and Issues List)**.
- The technical basis documents that describe how the STOMP modeling approach being proposed satisfies the applicable or relevant and appropriate requirements of WAC 173-340-747(8) and other State and Federal regulations and guidance was informally transmitted to DOE/RL on 10/1/07. DOE/RL is working through their concurrence process and making revisions before they officially transmit the documents to the EPA and Ecology.

- Phase III of the 241-U-361 Settling Tank sludge sampling is complete. The D&D-36146 Final Report for Tank U-361 Core Samples Collected in 2007 was issued on November 29, 2007. A tank characterization report was issued to DOE/RL on March 4, 2008.

FACILITIES STATUS

- DOE received Regulator comments on the 221-U RD/RAWP. DOE initiated TPA dispute processes to resolve comments.

Central Plateau Facility Decommissioning

- The Facilities Agreement in Principle activity is on hold pending completion of the 221-U RAWP dispute resolution process.

200-UP-1, 200-CS-1, 200-CW-1 OU Group

200-UP-1

- Values at well 299-W19-36 dropped below the 9,000 pCi/L RAO for Technetium-99. Well 299-W19-36 yielded a concentration of 7,400 pCi/L in a January 8, 2008 sample based on interim results.
- All other wells are below the interim RAOs of 480 µg/L and 9,000 pCi/L respectively (**Attachments 6 and 7**).
- RI/FS Work Plan:
 - Drilling continues on the remaining six wells (UP-6, UP-7, UP-8, UP-9, UP-10, and UP-12) during the week of 2/15/2008.
 - Construction of four wells has been completed, one well is being constructed as of 3/18/08 and the final well is being drilled. At this last well, the first groundwater sample was taken on 3/18/08. None of the wells have been developed or are ready for acceptance.
- Explanation of Significant Difference (ESD):
 - Ecology has drafted a CERCLA ESD. Ecology has a briefing scheduled with EPA at the end of the month. Ecology will incorporate EPA comments, then discuss the ESD with DOE/RL.
- Tc-99 Increase at SX-Farm
 - For well 299-W23-19, sample results indicate an increasing Tc-99 trend, rising from 46,000 pCi/L on October 1, 2007 to 57,000 pCi/L on 1/29/08.
- Pump and Treat
 - On 4/19/07, the pumps in wells W19-36 and W19-43 were restarted. As of 2/24/08, the project has pumped about 21,400,000 liters to the LERF Basin 43 at an average rate of approximately 36 L/m (9.4 gpm). These two wells address the higher uranium groundwater concentrations found in the area.
 - Quarterly results from the Effluent Treatment Facility were reported. The 200-UP-1 extracted about 5.5 million liters. The ETF treated an estimated 3.91 million liters between October and December 2007. During treatment,

the ETF removed an estimated 1.48 kg of Uranium, 18.2 gm of Tc-99 476 kg of nitrate and 250 gm of carbon tetrachloride from the 200-UP-1 wastewater.

200-CS-1

Ecology response has not been received on the Draft B of the feasibility study and proposed plan that were submitted to Ecology on September 27, 2007. Per TPA Action Plan Section 9.2, DOE/RL expected a response by October 29. Per Ecology's July 3, 2006 letter RL and TPA Action Plan Section 9.2, RL expected a response on the TSD closure plans by December 26.

Ecology is developing the Hazardous Waste Management Act (HWMA) permit closure chapters for the 200-CS-1 OU TSD units. Ecology expects to develop those chapters without further Ecology comment on the draft feasibility study and draft closure plans. Ecology believes this approach is consistent with its letter dated April 26, 2006.

An Ecology/RL technical meeting was held on February 7, 2008, where Ecology discussed a draft Statement of Basis for the 216-A-29 Ditch TSD Unit closure. The draft statement of basis identified information in the Draft A and B FS, Rev 0 RI Report, and Draft A closure plan submitted by DOE/RL. At the February UMM DOE/RL agreed to meet with Ecology to give feedback and identify issues with the Ecology Statement of Basis, using a CERCLA Action Memorandum and consulting with DOE Headquarters (as described in 10 CFR 1021) about NEPA requirements. This meeting was held on March 13. Ecology stated that they will be adding the 200-CS-1 OU TSDs into the HWMA Final Status Permit in order to meet to HWMA requirement for a complete permit. Ecology expects to include permit conditions for the 200-CS-1 OU TSDs, requiring physical closure to start within 180 days or a year, unless TPA milestones set different dates.

If Ecology takes action to require RL to close the TSDs outside of the established TPA process, RL's position is that a NEPA Environmental Assessment would be required to cover the TSD closures outside of CERCLA. It is RL's concern that a CERCLA EE/CA - Action Memorandum would likely stall at the same point as the Proposed Plan has stalled. DOE/RL is continuing to evaluate options for moving forward.

200-CW-1

(M-015-38B, 5/31/09, Feasibility Study/Proposed Plan) Ecology

- **Model Group 5 SAP**

- The MG-5 (200-CW-1) SAP, Rev 0, was approved by EPA, and the Waste Control Plan was approved by Ecology on February 26, 2008.
- Preparations are underway to begin investigation activities. Currently, direct pushes are scheduled to begin March 25, auger holes on April 7, and the borehole August 19, 2008.
- DOE is preparing a TPA change package for M-015-38B, based on delays in starting field work. The delays were due to Ecology review of the work plan taking longer than planned by DOE.

Supplemental Characterization (no change)

Currently, addendums are in preparation for 200-LW-1 and 2; 200-PW-5 and 200-TW-1; 200-TW-2; and 200-PW-2 and 4.

200-BC-1, 200-IS-1, 200-CW-5, & 200-SW-1/2 OU Group

200-BC-1

(M-15-51, 4/30/10, Feasibility Study/Proposed Plan) EPA

- SAP for electrical resistivity correlation was approved November 28, 2007. Drilling the first borehole began January 30 and reached total depth (248 ft) February 21, 2008. Drilling the next borehole began on February 19, 2008 and is at a depth of ~250 ft. Drilling the third borehole began February 19 and is expected to reach total depth (~345 ft) near the end of March.
- Excavation-based treatability test Phase I report approval is in progress.
- Treatability Test Phase II planning/preparations continued. Advance authorization to install infrastructure elements was granted. The cultural/eco review report is in the review/approval process. Equipment and instrumentation are being procured. Personnel training is underway.
- Treatability Test Plan (Rev. 0) is anticipated to be submitted to EPA for approval by March 20.
- Waste Control Plan (SGW-34277) is being revised to establish WCSA for ERDF cans and increase emphasis on the excavation portion of the TT.

200-IS-1

(M-13-27, 6/30/07, RI/FS Work Plan) Ecology

- Ecology had suggested taking the remaining five comments to dispute resolution as laid out in TPA Action Plan Figure 9-1. DOE initiated dispute resolution February 26, 2008 to resolve the remaining five comments. However, Ecology and DOE met on March 12, and resolved all but one comment: #25, that is, Ecology's expectations about risk assessment exposure scenarios for the Core Zone (see IS-1 Agreement on Attachment 1, Agreements and Issues List). RL will provide a letter to Ecology to close out the dispute.

200-CW-5 (no change)

(M-15-40D, 7/31/08, Feasibility Study/Proposed Plan) EPA

Feasibility Study and Proposed Plan are on schedule for submittal July 31, 2008.

200-SW-1/2

(M-13-28, 9/30/07, (Completed) RI/FS Work Plan) Ecology

- Received Ecology's comments on Draft B Work Plan on February 12, 2008.
- Comment responses have been drafted and are being reviewed with DOE/RL.

200-ZP-1, 200-PW-1/3/6 OU Group

200-ZP-1

(M-15-48B, 9/30/07, Feasibility Study/Proposed Plan) EPA

- Remediation Treatment Status:
 - Between October 1, 2007 and March 2, 2008 the 200-ZP-1 pump-and-treat system average pumping rate was approximately 231 gpm.
 - Nine of ten 200-ZP-1 extraction wells are currently on line pumping water at approximately 245 gpm.
 - Extraction well #9 is currently down due to a tripped breaker. This is currently being investigated.
 - A B+K analyzer failed on Sunday, March 16, 2008 which shut the plant down. The B+K was replaced on Monday March 17, 2008 and the system was re-started.
 - Extraction well #10 (299-W15-765) was offline earlier this month in support of soil removal activities associated with the Purolite resin groundwater spill.
 - One of the two T Tank Farm extraction wells (W11-45) is down for an aquifer recovery test. Extraction well W11-46 is pumping around 35 gpm to ETF.
 - Soil removal activities around the W15-765 Purolite resin skid where the recent groundwater spill occurred are now complete.
 - The top 1-ft of soil was removed across the entire spill area.
 - A total of 280 yd³ of soil (35 roll-off boxes) was removed and disposed of at ERDF.
 - **Attachments 8 through 17** present maps and tables showing the locations of two rounds (12/21/2007 and 1/8/2008) of soil sampling performed in the vicinity of the groundwater spill area along with the resulting analytical data. Also presented are photographs taken during soil removal activities.
 - Only trace detections of carbon tetrachloride were observed in two soil samples collected in the first sampling round. The more extensive second round of sampling showed no detection of groundwater contaminants except nitrate in one sample location (A4) which was detected in concentrations a few times the contract required detection limit (CRDL).
 - EPA (Laura Buelow acting for Dennis Faulk) provided their concurrence during the meeting to proceed in backfilling the excavated area.
 - No new data to report for carbon tetrachloride in extraction well 299-W15-6.
 - The 200-ZP-1 interim remedial design report (DOE/RL-96-07, Rev. 4) is still being updated to add the four new 200-ZP-1 extraction wells to go on line by the end of FY2008.
 - The design for tying in these four new extraction wells is ~90% complete at this time.

- Well development activities in new extraction wells W15-1, W15-7, and W15-11 are complete at this time.
 - Only 18 of 55 ft of sediment could be removed from extraction well W15-7. This still leaves a 75 ft water column in this well.
- Since sediment continued to be pulled through the perforation in these extraction wells during surging and development, screens have been ordered to be installed.
 - Sieve analyses run on sediment samples concluded that 10 slot screen is required. This will reduce production a bit. Ecology suggested using a wire-wrap screen instead of a slotted screen because a wire-wrap screen would give better production than a slotted screen.
- Extraction well pumps and other materials are being ordered at this time.
- The ZP-1 Functional and Operation Requirements document is complete and following internal review will be issued to RL in April.
- A national solicitation is currently being prepared for ex-situ treatment options for 200-West Area groundwater.
 - Many interested parties have been responding.
 - A Vendor Forum is scheduled for the first week of April.
- A draft pre-conceptual design document is currently being prepared that will identify the location of the final extraction/injection well network, well completions, transfer stations, treatment facility, etc.
 - Monthly meetings with the tank waste EIS group have been scheduled to discuss modeling.
- All five new water level monitoring stations have been installed in the vicinity of the new T Tank Farm extraction wells W11-45 and W11-46.
- Wells 288-W11-45 and 299-W11-46 have pumped an estimated 30,482,221 liters (8,052,551 gal) to ETF between September 12, 2007 and February 19, 2008.
- RI/FS Status:
 - FS and PP Report:
 - The Draft B FS and PP is still with EPA, comments are due by 3/22/08.
 - The full quantitative assessment of the two Native American scenarios is currently being performed and will be included in Revision 0.
 - Currently pulling together the important components of the PP and FS for EPA's use in preparing the ROD.
- Tc-99 Investigation Status:
 - T Tank Farm Investigations:
 - Extraction well W11-45 was taken offline last week for an aquifer recovery test. Extraction well W11-46 will be taken offline in a couple weeks for a similar test.

- The new "T-6" (W11-89) well will be positioned shortly after this aquifer testing has been completed.
- Purolite Resin Treatability Testing:
 - The Purolite Resin Test Report is around 70% complete.
 - Sampling crew is working with radiation safety group on a way to safely collect depth-discrete core samples through the W15-765 Purolite resin canister.

200-PW-1, 200-PW-3, & 200-PW-6

(M-15-45B, 9/30/07, Feasibility Study/Proposed Plan) EPA

- Responses to comments received from EPA and Ecology on the PW-1/3/6 FS and PP were transmitted to EPA on 2/22/08.
- A Tri-Parties workshop on the 200-PW-1/3/6 FS is tentatively scheduled for April 15.
- Soil Vapor Extraction System (SVE):
 - The SVE system is currently being prepared for an April 1, 2008 startup.
 - The soil vapor extraction operating strategy for FY 2008 is being prepared to support soil vapor extraction operations. This strategy has been signed by the DOE/RL and EPA operable unit managers and will be attached to the UMM meeting minutes (**Attachment 18**).
 - Design specifications are being prepared for two new 500 cfm SVE units that are to be delivered this fiscal year.
 - The conversion of three existing wells to SVE wells is on schedule to be complete by the end of March 2008.
 - The passive systems remain operational.
 - Monthly monitoring results for February 2008 for the three narrow diameter wells south of 216-Z-9 are shown in **Attachment 19**. Carbon tetrachloride concentrations in the wells and probes monitored during February 2008 were consistent with previous results.

200-MW-1 & PW-2 OU Group

200-MW-1

(M-15-44B, 12/31/08, Feasibility Study/Proposed Plan) EPA

- Decommissioning of the high-risk borehole in the 216-A-2 Crib is nearly completed. All that remains is to construct surface pad and install small enclosure to house deep probe connection.
- Work continues on the mini-RI for the supplemental investigations.
- The draft RI (DOE/RL-2005-62) documenting investigations of sites that have since been parsed to others OUs is being revised for issuance as a Rev 0 in March or April of 2008.
- We are assembling the FS team and selecting contractors to participate.

200-PW-2 & 200-PW-4

(M-15-43D, 12/31/10, Feasibility Study and Revised Recommended Remedy(ies)) Ecology

- The surface electrical resistivity field work has been completed and a draft report is expected late-March or early-April.
- Ecology and DOE completed their reviews of the SAP for field investigations at the 216-A-5 and 216-S-1/2 Cribbs. Planning for the associated field work is underway. The direct pushes are anticipated to be performed in late-April and the high-risk borehole at 216-A-5 is expected to start in mid-May.

200-MG-1/2 & ECO OU Group

200-MG-1/200-MG-2 Model Group 1 Sites

**(M-15-49A, 12/31/08, MG-1 Feasibility Study/Recommended Remedy) Ecology
(M-15-49B, 12/31/08, MG-2 Feasibility Study/Proposed Plan) EPA**

DOE will continue discussions with EPA and Ecology to resolve the schedule and TPA milestone issues for 200-MG-1/2. Ecology states that the issues are:

- DOE lacks remedial investigation data to complete feasibility studies required by M-15-49a and M-15-49b.
- DOE's baseline funding profile for waste site cleanup does not support the M-16 milestone changes that were informally proposed by EPA and Ecology.

The Contractor will continue to prepare the FS/PP as required by the existing TPA milestones.

Ecological Risk Assessment

- The Draft A version of the Ecological Risk Assessment (ERA) Report was transmitted to DOE/RL on 2/1/08. A re-issue version with some word changes was transmitted to DOE/RL on 2/29/08.
- DOE/RL transmitted the Draft A ERA to regulators on 3/6/08.
- A workshop was set for April 9, 2008 with the Tri-Party Agency decision-makers, tribal participants and external stakeholders to discuss the risk assessment results. However, a TPA required budget meeting was scheduled for that same day, deferring the Central Plateau ERA workshop to a later date, yet to be established.

200-BP-5 & PO-1 OU Group

200-BP-5

**(M-13-06B, 3/31/07, RI/FS Work Plan, Completed) EPA
(M-15-21A, 10/31/10, Feasibility Study/Proposed Plan) EPA**

Drilling:

- Drilling of well 299-E33-343/C5858 was completed March 5 and developed March 10, 2008 (Figure 1, **Attachment 20**).
 - Development at 20 gallons/minute for 15 minutes produced a draw down of .017 ft.
 - The screen is from 249.9' to 259.9' bgs.
 - Completed geophysical logging to ~261' bgs on 2/26/2008.
 - Waiting on analytical results.
- Well 299-E33-344, located north of B tank Farm near well 299-E33-18 was completed in a perched aquifer (Figure 1).
 - Waiting on analytical results.
- Drilling of well 299-E33-345/C6226 was completed February 22, 2008 (Figure 1).
 - Completed geophysical logging to 260' bgs on 2/26/2008.
 - Well completion is in progress.
- Drilling of well 299-E33-342/C5857 began March 12, 2008 (Figure 1).

Work Plan:

Completed Rev 0 of DOE/RL-2007-18 *"RI/FS Work Plan for the 200-BP-5 GW OU"* March 4, 2008. Sent to DOE for internal review and signature March 4, 2008.

Integration:

Working with CHG on DQO for WMA C. Participated in the scoping process and initial development of decision statements. Completed presentation for the public at the Kick-Off meeting March 6, 2008.

Preparing to drill well 299-E33-205/C5989 the "C" well in the BX tank farm in early May (Figure 1).

200-PO-1

(M-13-10A, 9/30/07, RI/FS Work Plan) Ecology

- Ecology approved the Rev. 0 document on 2/6/08. Work plan field investigation activities initiated.
- Contract awarded to acquire Phase I High Resolution Reflection Seismic data scheduled to begin March 20, 2008. Approximately 12 miles of data will be gathered in the 200 East Area through mid-April.
- Contract award for Airborne EM Pilot Study in the 600 Area is pending final technical evaluation related activities. Expected start of field activity in April.
- Waste Control Plan update draft revision initiated March 1, 2008.

200-SC-1 & 200-LW-1 OU Group

200-SC-1

(M-15-40E, 12/31/10, Feasibility Study/Proposed Plan for 200-SC-1) EPA

- **Supplemental Characterization:**
 - **216-B55 Crib:** Drill and sampling at 216-B-55 was completed on February

19th. Borehole decommissioning is in progress. The figure in **Attachment 21** depicts the maximum Cesium-137 concentration in each direct push borehole as determined by geophysical logging along the length of the crib. The maximum value measured in each borehole was located a depth that corresponded with the bottom of the crib.

- **216-A-30 Crib:** Drilling started March 4, 2008. At the close of business March 13, 2008, the borehole depth was 36 ft bgs. Radiological contamination was encountered at approximately 18 ft bgs. The maximum contamination encountered to date was 450,000 dpm as measured by handheld field instruments and occurred at 32.5 to 35.0 ft bgs.

200-LW-1/200-LW-2

(M-15-46B, 12/31/11, Feasibility Study/Recommended Remedy) Ecology

- **200-LW-1/2 Site-Specific Field-Sampling Plans (DOE/RL-2007-02-VOL II Rev 1A):**
 - **Draft Document:** The draft document is being reviewed and approved by DOE/RL for transmittal to Ecology.

200-TW-1 & 200-PW-5 OU Group

200-TW-1 & 200-PW-5

(M-15-42D, 12/31/11, Feasibility Study/Proposed Plan for TW-1 & PW-5) EPA

- Site-specific field sampling plan has been transmitted to DOE/RL.

200-TW-2 OU Group

200-TW-2

(M-15-42E, 12/31/11, Feasibility Study/Revised Recommended Remedy(ies) for TW-2) Ecology

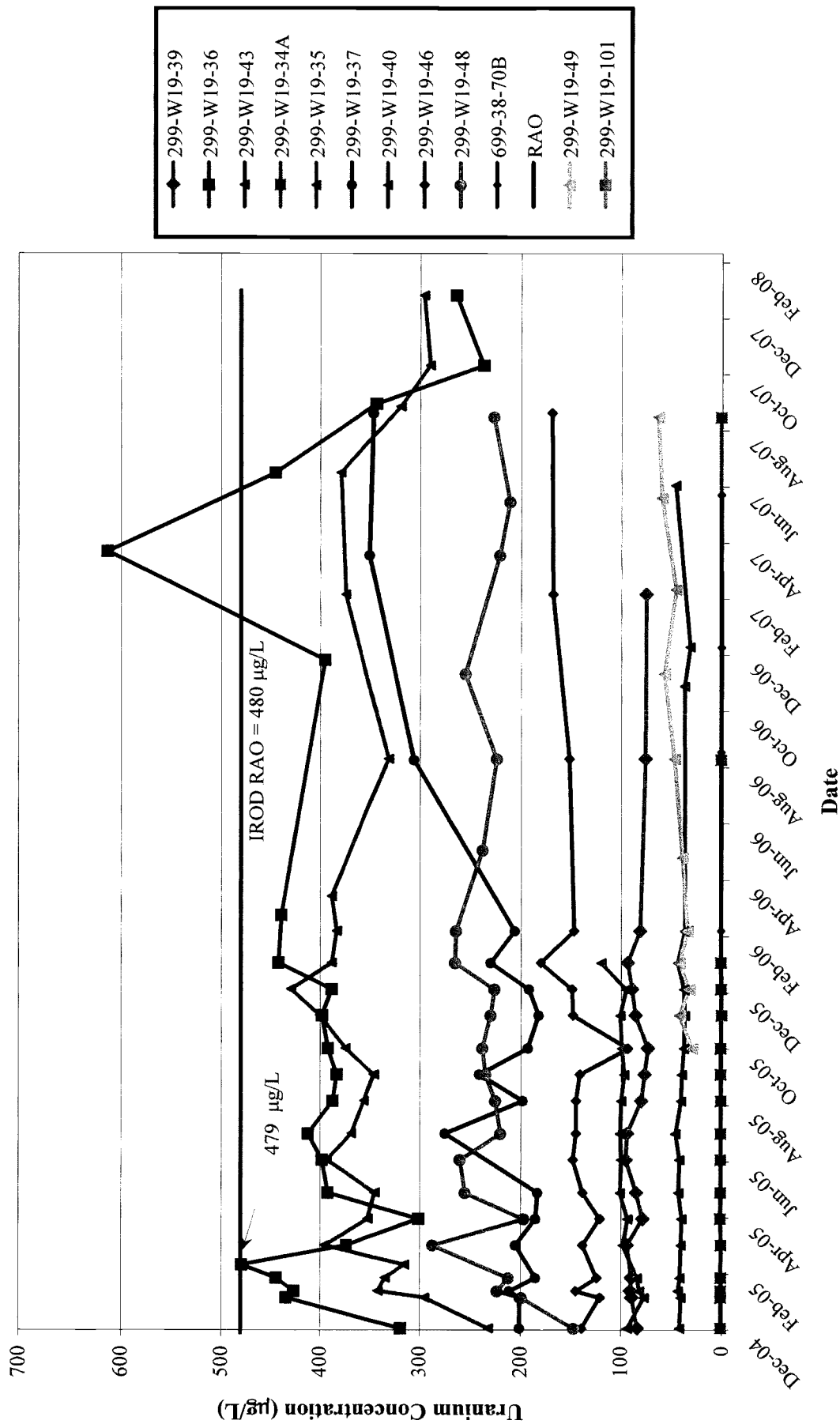
- An internal review of the site-specific field sampling plan will be completed this week.

200-UR-1

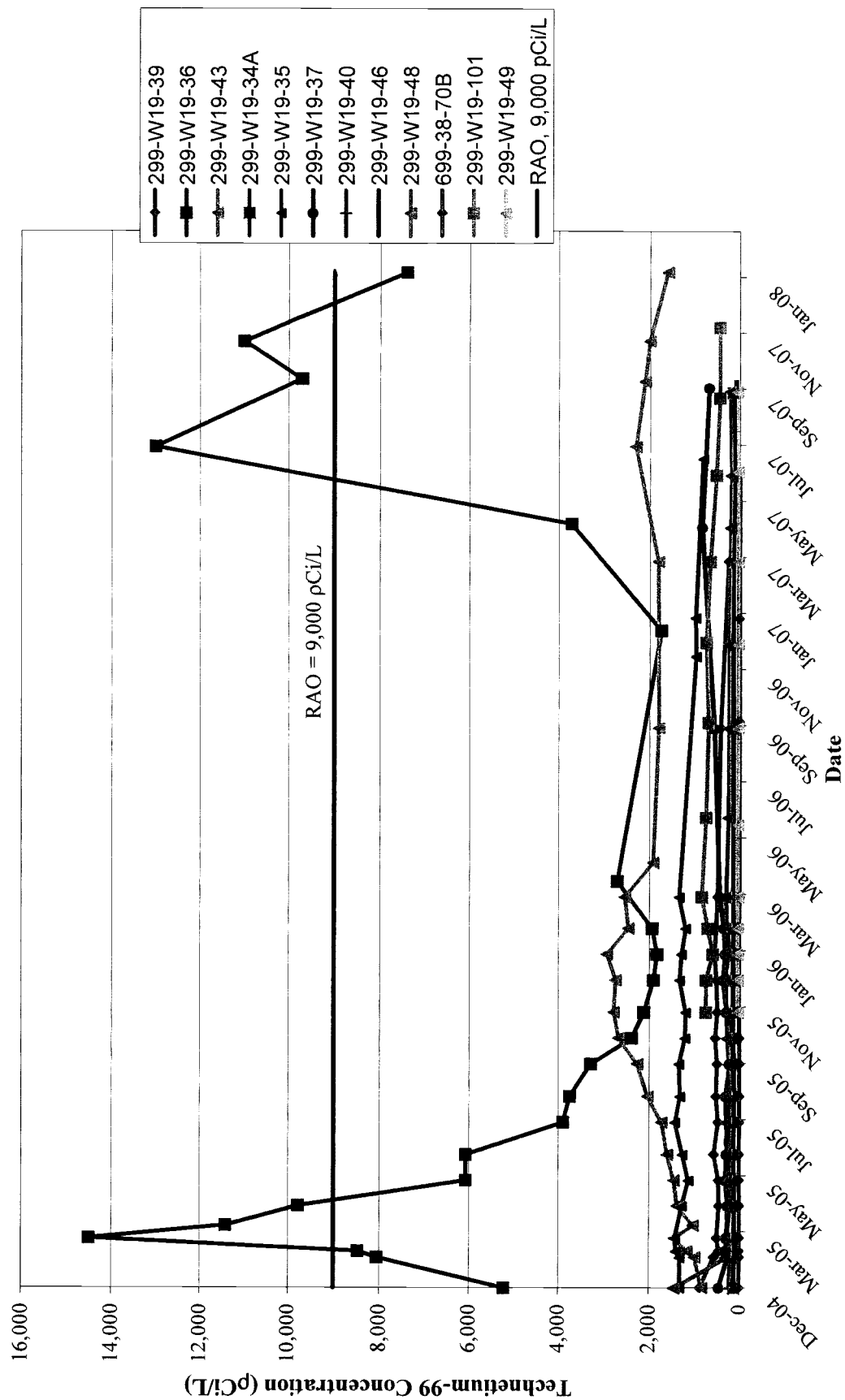
200-UR-1 Ecology

- Radiological surveys for the eastern and western sections of the BC Control Area are approximately 45% complete (**see Attachment 22**). RCTs are presently engaged in higher priority work including surveying to support planned removal action.
- West Lake DQO summary report – review workshops with Ecology were concluded February 25, 2008. Ecology is preparing written comments.

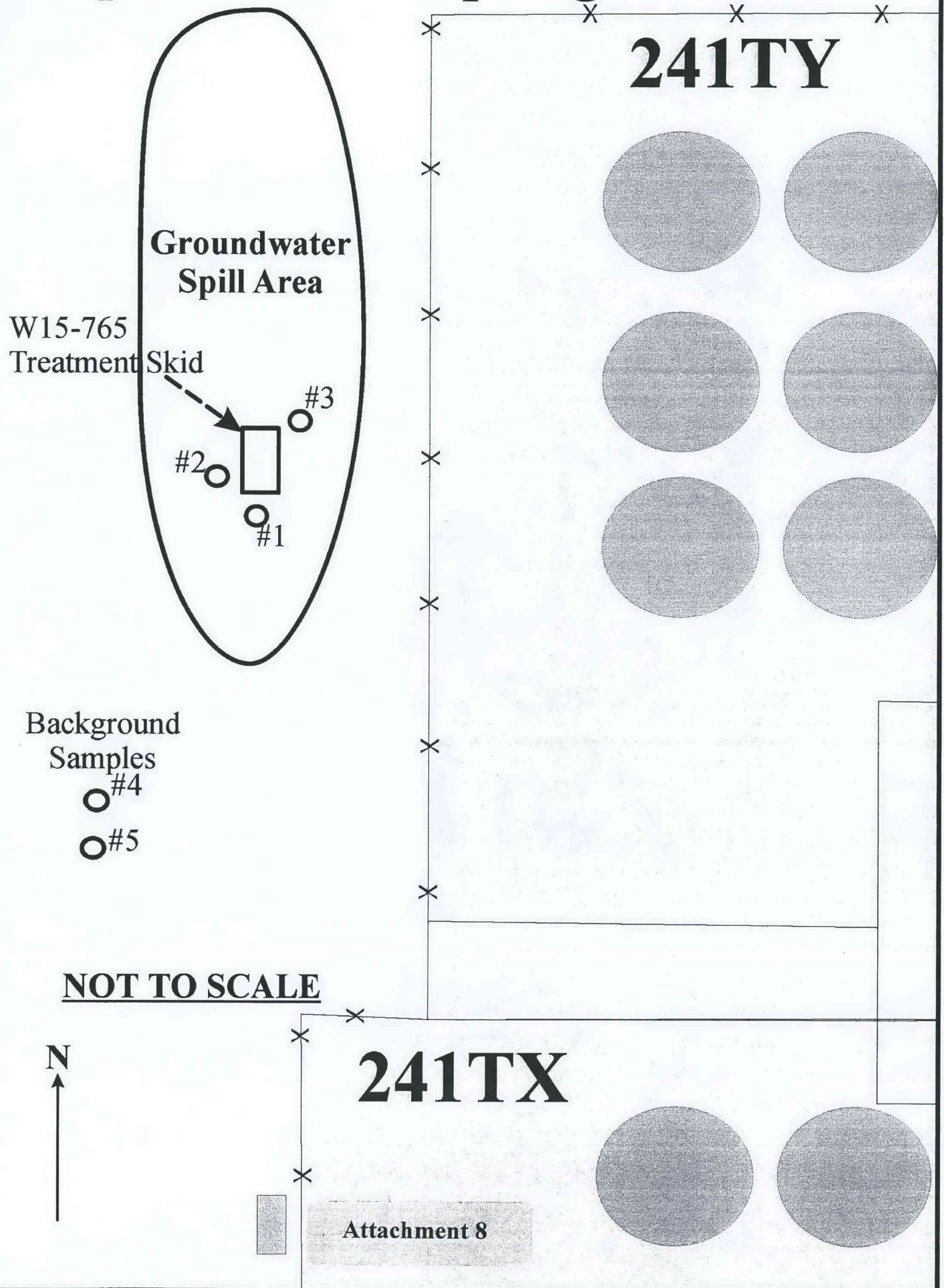
200-UP-1, Uranium (µg/L)



200-UP-1, Technetium-99 (pCi/L)



Spill Soil Sampling Round 1

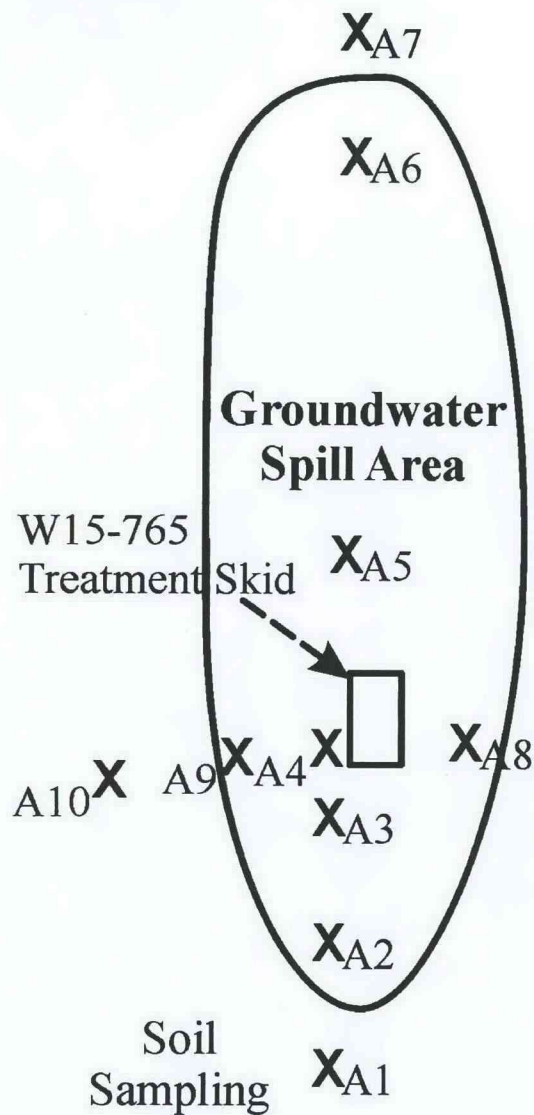


SPILL SAMPLING ROUND 1

Location	HEIS Number	Tc-99	Nitrate -N	HEIS Number	TCE	CCl4	HEIS Number	VOA Method Blank
1	B1RWH1	Not Detected	1.00 mg/kg	B1RWJ2	Not Detected	13.0 ug/kg	B1RWJ7	
2	B1RWH2	Not Detected	3.41 mg/kg	B1RWJ3	Not Detected	Not Detected	B1RWJ8	
3	B1RWH3	Not Detected	5.95 mg/kg	B1RWJ4	Not Detected	32 ug/kg	B1RWJ9	
4	B1RWH4	Not Detected	1.38 mg/kg	B1RWJ5	Not Detected	Not Detected	B1RWK0	
5	B1RWH5	Not Detected	0.36 mg/kg	B1RWJ6	Not Detected	Not Detected	B1RWK1	

DRAFT

Spill Soil Sampling Round 2



241TY

NOT TO SCALE



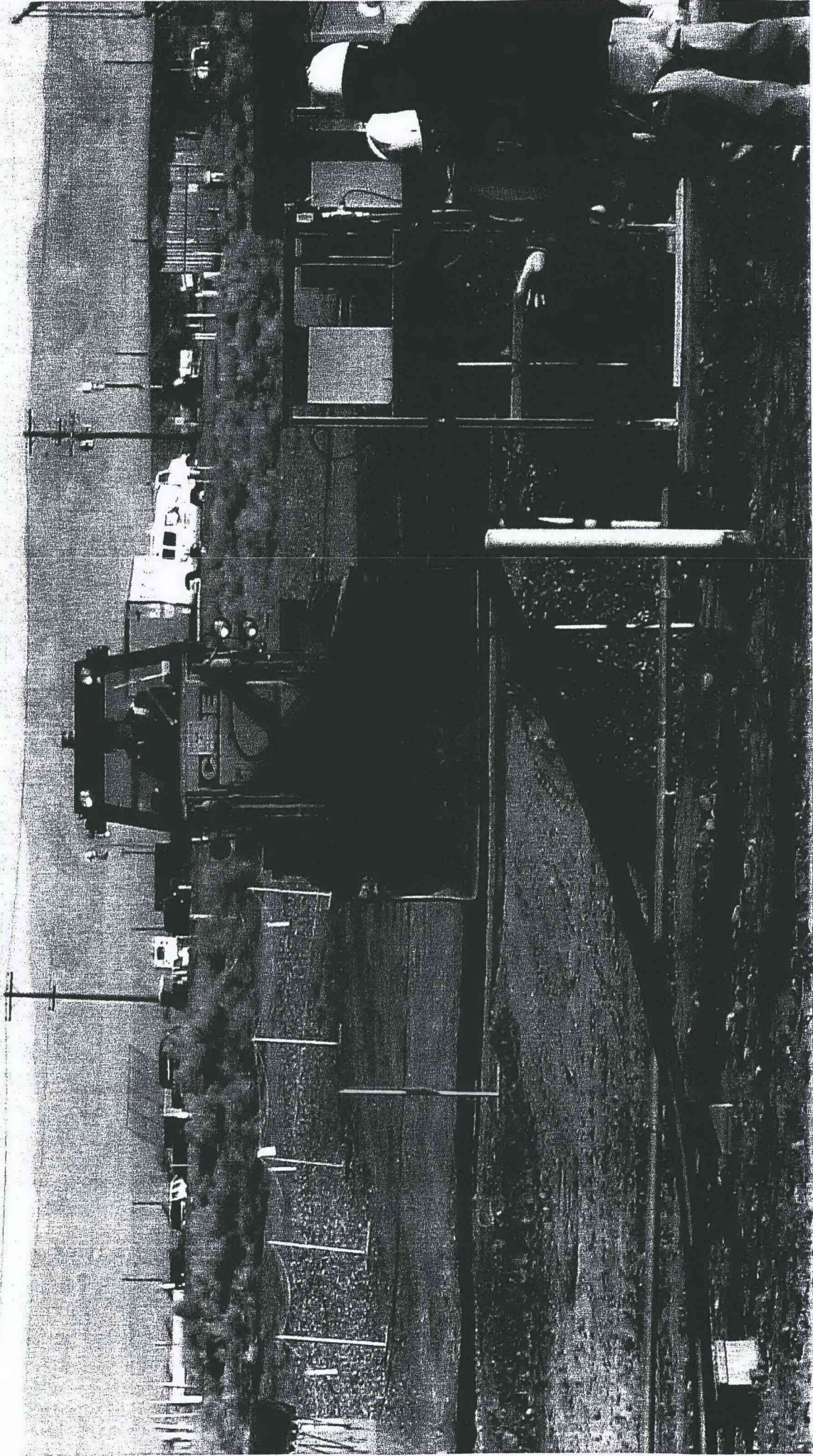
241TX

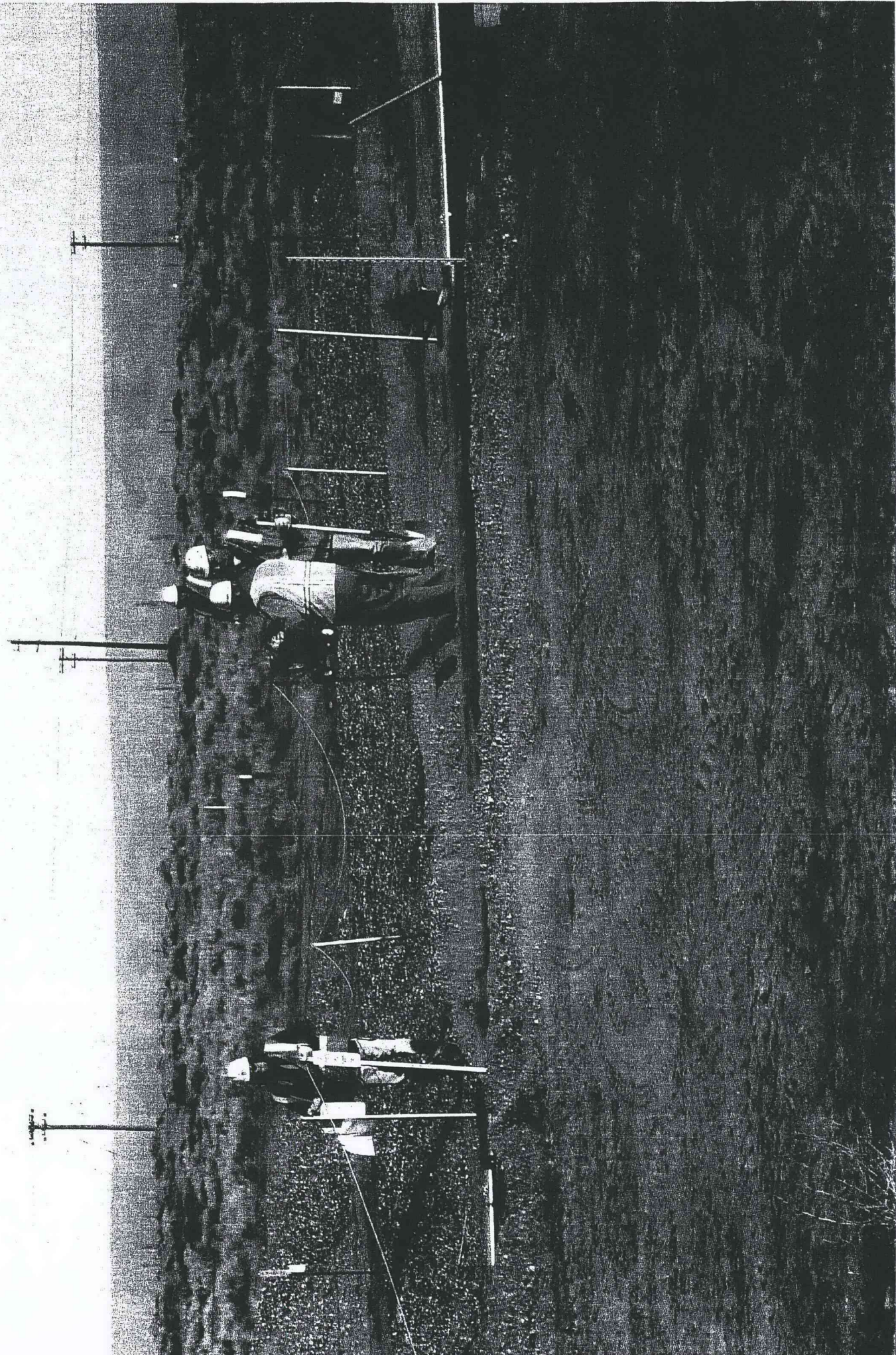
Attachment 10

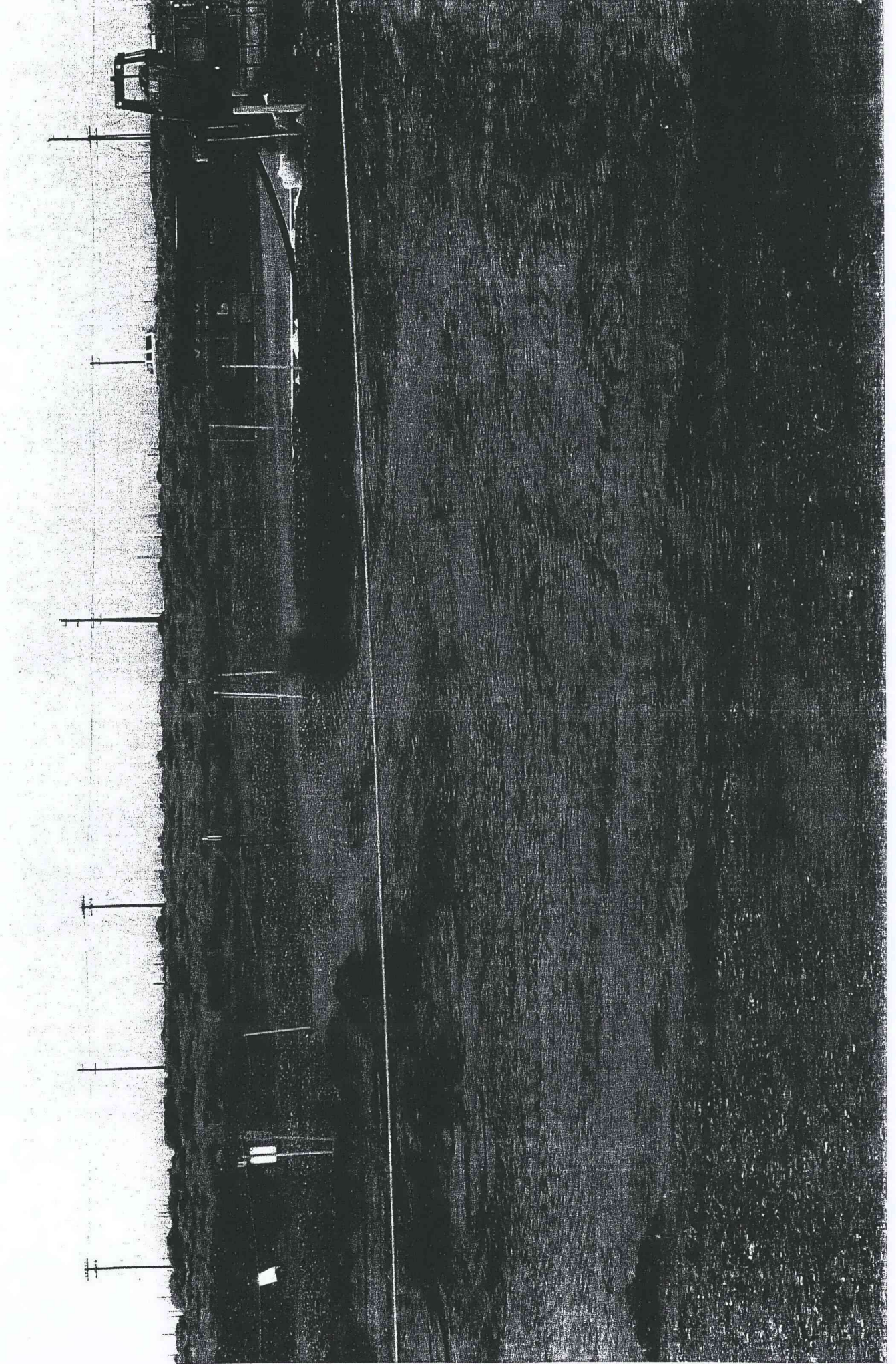
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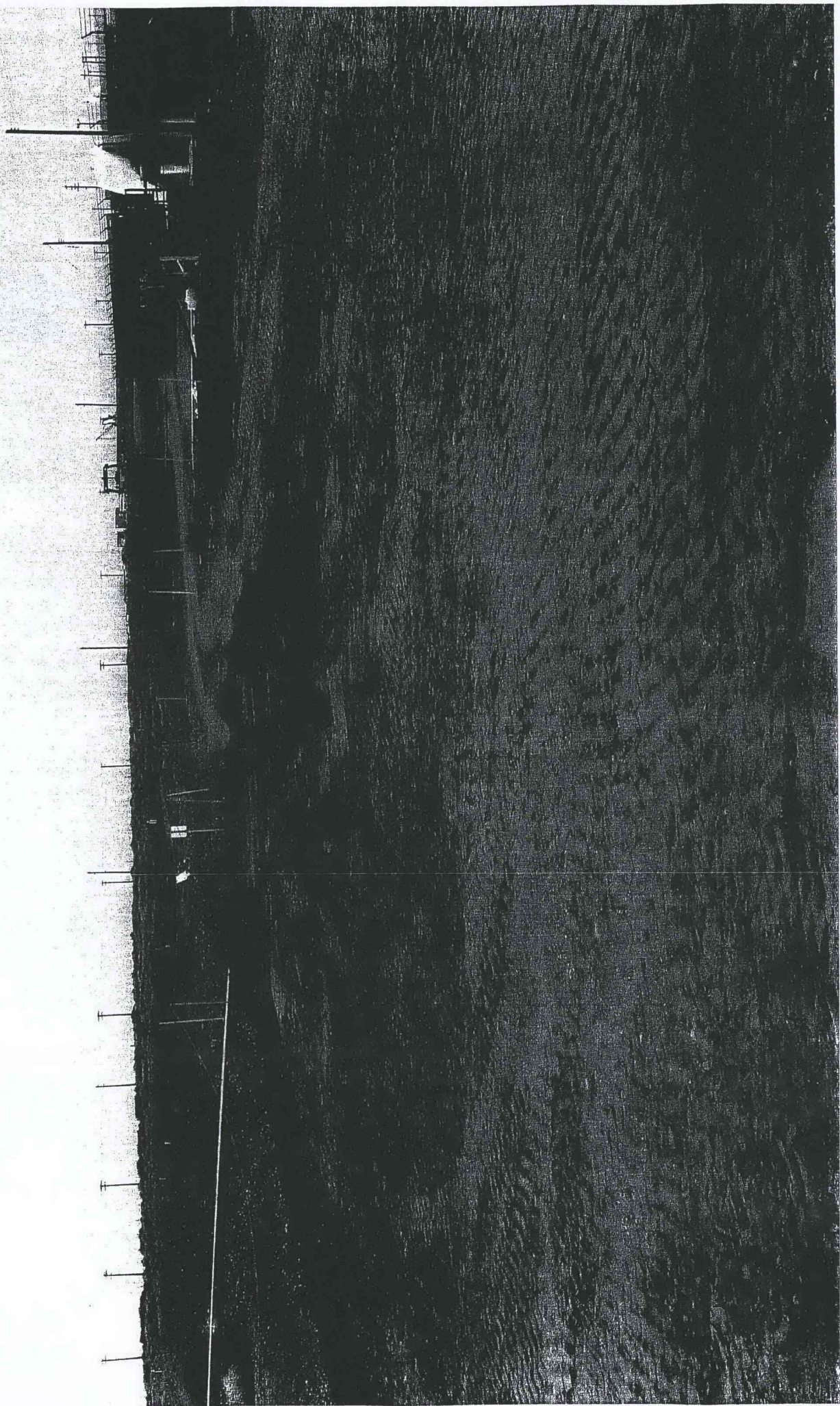
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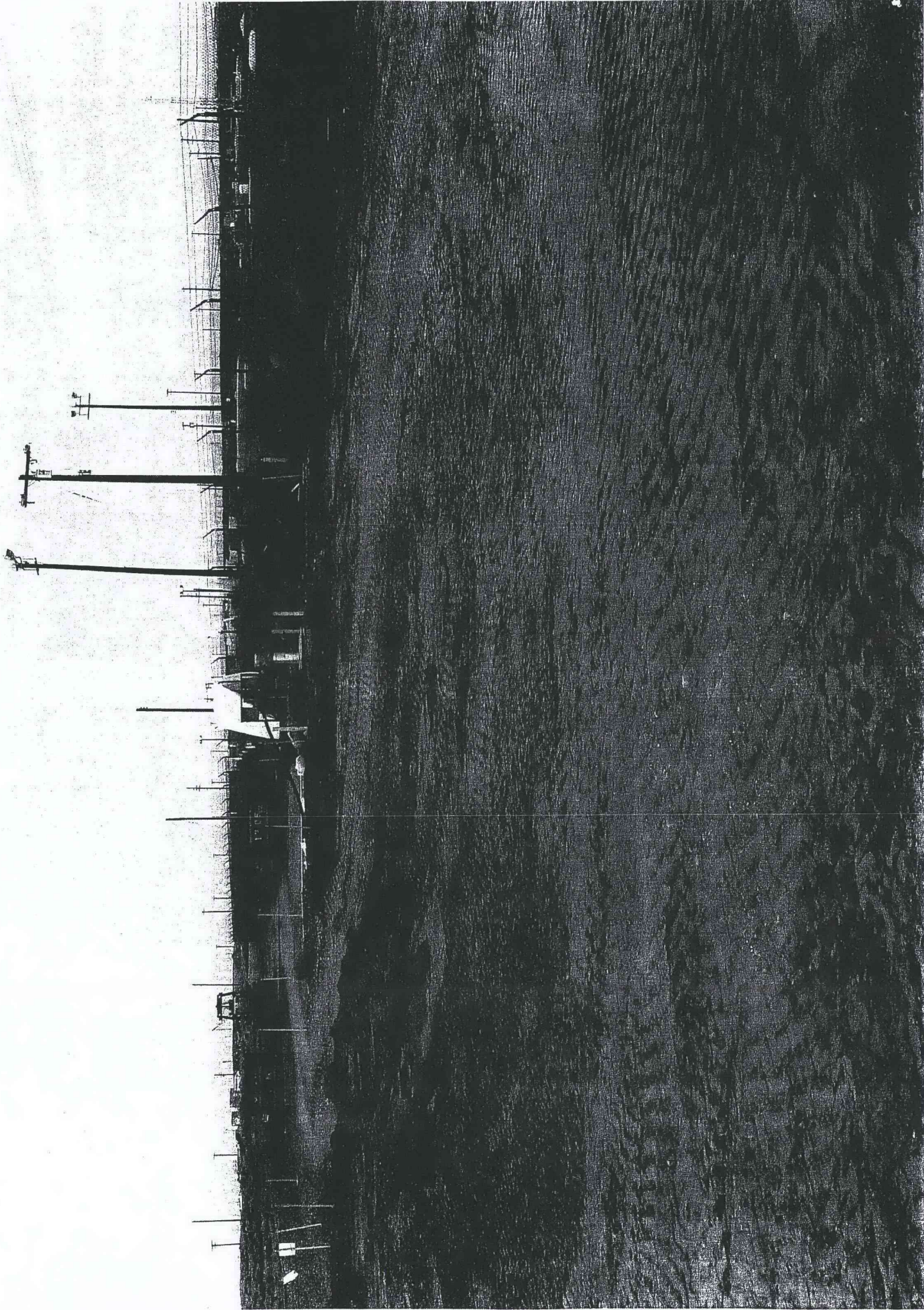








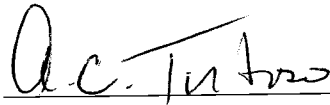




Attachment 18, Figure 1

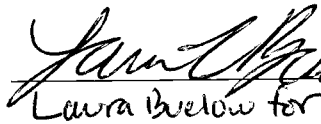
APPROVAL OF THE CARBON TETRACHLORIDE EXPEDITED RESPONSE ACTION
SOIL VAPOR EXTRACTION SYSTEM OPERATING PLAN FOR FY 2008

The Unit Managers for the Carbon Tetrachloride Expedited Response Action (200-PW-1 Operable Unit) approve the attached FY 2008 Soil Vapor Extraction System Operating Plan.



3/20/08

A. C. Tortoso
U.S. Department of Energy
Richland Operations Office


Laura Below for

3-20-08

Date

D. A. Faulk

Date

U.S. Environmental Protection Agency
Region 10, Hanford Office

FY 2008 SOIL VAPOR EXTRACTION SYSTEM OPERATING PLAN FOR THE
CARBON TETRACHLORIDE EXPEDITED RESPONSE ACTION
(200-PW-1 OPERABLE UNIT)

SUMMARY

Soil vapor extraction will be used at the 200-PW-1 Operable Unit (OU) during FY 2008 to remove carbon tetrachloride from the vadose zone. The primary objectives for this remediation are protection of the groundwater and mass removal. Only the 14.2 m³/min soil vapor extraction (SVE) system will be operated. Two sites will be remediated using SVE: the 216-Z-9 (Z-9) site and the 216-Z-1A/Z-18/Z-12 (Z-1A) site. Specific on-line wells have been selected prior to start-up at each site based on vapor monitoring, previous concentration trends, and location. These site-specific plans are included in this operating plan for approval by the Unit Managers prior to implementation. Based on characterization data collected at on-line wells during operation, the mix of on-line wells may be reconfigured during operations to optimize removal. These adjustments to the mix of on-line wells will not be submitted to the Unit Managers for approval prior to implementation but will be reported at Unit Manager Meetings.

Ongoing passive soil vapor extraction will be maintained at Z-1A wells. Passive soil vapor extraction is a remediation technology that uses naturally induced pressure gradients between the subsurface and the surface to drive soil vapor to the surface. In general, falling atmospheric pressure causes subsurface vapor to move to the atmosphere through wells, while rising atmospheric pressure causes atmospheric air to move into the subsurface. The passive soil vapor extraction systems will be used to remove carbon tetrachloride from the vadose zone.

Soil vapor monitoring will be conducted at vadose zone locations near the groundwater, the Cold Creek unit, and the ground surface at the Z-1A and Z-9 sites while they are not being actively remediated using SVE. The soil vapor monitoring plan for both sites from April 2008 through September 2008 is included with this operating plan for approval prior to implementation. Anomalies in the monitoring results will be reported at the 200 Area Unit Manager Meetings. If carbon tetrachloride vapor concentrations increase such that the carbon tetrachloride contamination may impact human health or the environment (including groundwater), the Unit Managers will decide on the appropriate response to mitigate the problem (e.g., relocating the vapor extraction system to address the problem).

The anticipated schedule for SVE operations and soil vapor monitoring is:

April 2008 through June 2008:	Operate the SVE system at the Z-1A site Monitor soil vapor concentrations at the Z-9 site
July 2008 through September 2008:	Operate the SVE system at the Z-9 site Monitor soil vapor concentrations at the Z-1A site

This plan implements continued system operations as determined by the 200-PW-1 operable unit project managers, consistent with *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) Change Number M-15-97-01, "Revised 200-ZP-2 Rebound Study Restart."

SOIL VAPOR EXTRACTION AT THE 216-Z-1A, 216-Z-18, AND 216-Z-12 SITE

Scope

Twenty-eight wells at the 216-Z-1A, 216-Z-18, and 216-Z-12 site (Z-1A site) are identified for potential soil vapor extraction (Table 1). Selected wells will be prepared for potential hook-up to the soil vapor extraction system during April through June 2008.

The last non-operational soil vapor monitoring at Z-1A prior to SVE restart will take place in late March 2008. At that time, any sampling tubes will be removed from potential on-line wells. The current wellhead assemblies (configured for non-operational soil vapor monitoring) will not be disturbed until the monitoring has been completed and the tubing removed.

Extraction Wells

Passive soil vapor extraction is being conducted at the following Z-1A wells with lower intervals open between the Cold Creek unit and groundwater: 299-W18-6L, 299-W18-7, 299-W18-10L, 299-W18-11L, 299-W18-12, 299-W18-246L, 299-W18-247L, and 299-W18-252L (Table 2).

For initial start-up operations at Z-1A, extraction will be implemented at five planned intervals in the Z-1A tile field: 299-W18-165, 299-W18-166, 299-W18-167, 299-W18-168, and 299-W18-174 (Table 1) (Figure 1). Start-up operations in FY 2001, FY 2002, FY 2003, FY 2004, and FY 2005 also were initiated using these five extraction intervals (a sixth interval selected in FY 2001 produced virtually no flow). In FY 2006 and FY 2007, start-up operations were initiated using three of these wells. Selecting the same set of initial wells will allow the rebound in FY 2008 to be compared to the rebound in previous years.

The mix of on-line wells will be periodically changed during operations, based on changing concentrations, extraction interval locations, and operating experience. In general, the initial extraction wells will be nearer the primary carbon tetrachloride source (Z-1A Tile Field) and wells added later will expand operations away from this source.

Two wells, 299-W18-150 and 299-W18-175, in the Z-1A Tile Field, were converted for use as SVE wells during FY 2008 and are included in the list of SVE wells in Table 1. These wells will be prioritized for use in FY 2008.

Characterization

The initial five intervals will be characterized on the first day of operations. During continued operations, all on-line wells will be characterized each week and all off-line wells, if requested, will be characterized during the 2nd, 4th, 6th, 8th, 10th, and final weeks, according to the attached sampling and analysis plan (Table 3).

Data Management

The 200-PW-1 OU technical lead organizes and maintains spreadsheets of the characterization data on a desktop computer. The characterization data are included in the annual performance evaluation report (e.g., SGW-33746, *Performance Evaluation Report for Soil Vapor Extraction Operations at the 200-PW-1 Operable Unit Carbon Tetrachloride Site, Fiscal Year 2006*).

SOIL VAPOR EXTRACTION AT THE 216-Z-9 SITE

Scope

Thirty wells at the 216-Z-9 site (Z-9 site) are identified for potential vapor extraction (Table 4). Selected wells will be prepared for potential hook-up to the soil vapor extraction system during July through September 2008.

The last non-operational soil vapor monitoring at Z-9 prior to SVE restart will take place in mid to late June 2008. At that time, any sampling tubes will be removed from potential on-line wells. The current wellhead assemblies (configured for non-operational soil vapor monitoring) will not be disturbed until the monitoring has been completed and the tubing removed.

Extraction Wells

For initial start-up operations at Z-9, extraction will be implemented at four planned intervals: 299-W15-217, 299-W15-82, 299-W15-9U, and 299-W15-9L (Table 4) (Figure 1). Start-up operations at Z-9 in FY 1998, FY 1999, FY 2001, FY 2002, FY 2004, FY 2006, and FY 2007 also were initiated using these four extraction intervals. (A slightly different set of initial wells was used in FY 2005). Selecting the same set of initial wells will allow the rebound in FY 2008 to be compared to the rebound in previous years. (The SVE system was not operated at the Z-9 site during FY 2003 to avoid interfering with the characterization sampling to be conducted during drilling of well 299-W15-46.)

The mix of on-line wells will be periodically changed during operations, based on changing concentrations, extraction interval locations, and operating experience. In general, the initial extraction wells will be nearer the carbon tetrachloride source (Z-9 Trench) and wells added later will expand operations away from this source.

Two narrow diameter wells, CPT-21 and CPT-11, in the Z-9 wellfield were converted for use as SVE wells during FY 2008 and are included in the list of SVE wells in Table 4. These wells will be prioritized for use in FY 2008. Three narrow-diameter wells (C4937, C4938, and C5340), which were installed south of Z-9 in FY 2007, and the Z-9 slant well (299-W15-48), which was installed beneath Z-9 in FY 2006, also will be prioritized for use in FY 2008.

Characterization

The initial four intervals will be characterized on the first day they are placed into operation. During continued operations, all on-line wells will be characterized each week and all off-line wells, if requested, will be characterized during the 2nd, 4th, 6th, 8th, 10th, and final weeks, according to the attached sampling and analysis plan (Table 3).

Data Management

The 200-PW-1 OU technical lead organizes and maintains spreadsheets of the characterization data on a desktop computer. The characterization data are included in the annual performance evaluation report.

VADOSE ZONE MONITORING PLAN FOR SOIL VAPOR EXTRACTION SITES

Summary

This plan describes planned non-operational monitoring and passive soil vapor extraction monitoring to be conducted during April through September 2008 for the 200 West Area Carbon Tetrachloride Expedited Response Action (200-PW-1 Operable Unit). Non-operational monitoring will be conducted at the 216-Z-9 (Z-9) site during April through June 2008 while the soil vapor extraction (SVE) system is operating at the 216-Z-1A/Z-18/Z-12 (Z-1A) site. Non-operational monitoring will be conducted at the Z-1A site during July through September 2008 while the SVE system is operating at the Z-9 site. Passive soil vapor extraction monitoring will be conducted at the Z-1A site from April 2008 through September 2008.

Purpose and Objectives

The purpose of non-operational monitoring is to measure carbon tetrachloride concentrations in the vadose zone during the shutdown of the SVE system.

The objectives of monitoring the non-operational wells and soil vapor probes are (1) to measure carbon tetrachloride concentrations and trends near the vadose-atmosphere and vadose-groundwater interfaces to evaluate whether non-operation of the SVE system is negatively impacting the atmosphere or groundwater; and (2) to be cognizant of carbon tetrachloride concentrations and trends near the lower permeability Cold Creek unit to provide an indication of concentrations that can be expected during restart of SVE operations and to support selection of on-line wells.

The objectives of monitoring the passive soil vapor extraction system wells, which are all open near the vadose-groundwater interface, are: (1) to measure carbon tetrachloride concentrations and trends near the vadose-groundwater interface; and (2) to quantify the mass of carbon tetrachloride removed using this technology.

Scope and Methods

Carbon tetrachloride soil vapor concentrations will be monitored at selected soil vapor probes and wells during non-operation of the soil vapor extraction (SVE) system (Tables 5 and 6). At any particular time, all of the probes and some of the wells will be "non-operational," i.e., they will not be connected to the SVE system.

Eight of the non-operational wells have a passive soil vapor extraction system installed at the wellhead. Passive extraction wells will vent through aboveground canisters containing granular activated carbon (GAC). The carbon tetrachloride vapor concentration will be monitored both upstream and downstream of the GAC.

For monitoring the non-operational soil vapor probes and wells and the passive extraction wells, the components of this scope are:

- Collect soil vapor samples in Tedlar bags for field screening
- Analyze soil vapor samples for carbon tetrachloride using a field screening instrument (the Bruel and Kjaer 1302 multi-gas analyzer)

Attachment 18, Figure 6

- Evaluate concentration trends and report anomalous results to 200-PW-1 Operable Unit Managers
- Include results in annual reports

Duration

Non-operational monitoring and passive soil vapor extraction monitoring will be conducted from April 2008 through September 2008 during FY 2008.

Monitoring Frequency

Monitoring will be conducted monthly.

Monitoring Locations

Locations were selected to focus carbon tetrachloride monitoring near the vadose-atmosphere and vadose-groundwater interfaces and near the Cold Creek unit (Table 5). These monitoring locations may be revised by the 200-PW-1 OU task lead based on developing trends, accessibility, and/or recommendations of the sampler. The 200-PW-1 Operable Unit Managers will be advised of any changes to the monitoring locations. Monitoring locations are shown on Figures 2 and 3.

Data Management

The field screening data obtained from non-operational wells and soil vapor probes and passive extraction wells are entered into a controlled field logbook, which is maintained by Lockheed Martin Services Inc (LMSI) Records Information Management (RIM) department. The 200-PW-1 OU technical lead organizes and maintains spreadsheets of the field screening data on a desktop computer. The field screening data are entered into the Hanford Environmental Information System (HEIS) database.

Data Reporting

All of the field screening data, and associated quality control data, are included in the annual performance evaluation report for soil vapor extraction operations (e.g., SGW-33746, *Performance Evaluation Report for Soil Vapor Extraction Operations at the 200-PW-1 Operable Unit Carbon Tetrachloride Site, Fiscal Year 2006*). The 200-PW-1 Unit Managers will be advised of any anomalous results or new trends, based on comparison with results of previous carbon tetrachloride monitoring and evaluation by the 200-PW-1 technical lead.

Quality Assurance/Quality Control

Quality assurance/quality control requirements for sampling and analysis will be conducted at a level appropriate to field screening for volatile organic compounds, in accordance with the project quality assurance project plan [HNF-20635, *Soil & Groundwater Remediation Project Quality Assurance Project Plan (GRP-QA-001)*]. At a minimum, one field duplicate sample will be collected for every 20 vapor samples collected. A carbon tetrachloride standard and a blank sample will be analyzed at the beginning of the analysis of the vapor samples.

References

Ecology, EPA, and DOE, 1989, *Hanford Federal Facility Agreement and Consent Order*, 2 vols., Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington, as amended.

HNF-20635, *Soil & Groundwater Remediation Project Quality Assurance Project Plan (GRP-QA-001)*, Rev. 2, Fluor Hanford, Inc., Richland, Washington.

SGW-33746, *Performance Evaluation Report for Soil Vapor Extraction Operations at the 200-PW-1 Operable Unit Carbon Tetrachloride Site, Fiscal Year 2006*, Rev. 0, Fluor Hanford, Inc., Richland, Washington.

Attachment 18, Figure 8

Table 1. Wells Available for Soil Vapor Extraction System Operations at the 216-Z-1A/Z-18/Z-12 Site, April through June 2008

Potential On-Line Wells	Reason	Initial Wells
299-W18-6U	Mass removal	
299-W18-89	Mass removal	
299-W18-93	Mass removal	
299-W18-94	Mass removal	
299-W18-96	Mass removal	
299-W18-97	Mass removal	
299-W18-98	Mass removal	
299-W18-99	Mass removal	
299-W18-150	Mass removal	
299-W18-152	Mass removal	
299-W18-153	Mass removal	
299-W18-157	Mass removal	
299-W18-158L	Mass removal	
299-W18-159	Mass removal	
299-W18-163L	Mass removal	
299-W18-165	Mass removal	X
299-W18-166	Mass removal	X
299-W18-167	Mass removal	X
299-W18-168	Mass removal	X
299-W18-169	Mass removal	
299-W18-171L	Mass removal	
299-W18-174	Mass removal	X
299-W18-175	Mass removal	
299-W18-246U	Mass removal	
299-W18-247U	Mass removal	
299-W18-248	Mass removal	
299-W18-249	Mass removal	
299-W18-252U	Mass removal	

Table 2. Passive Soil Vapor Extraction Wells at the 216-Z-1A/Z-18/Z-12 Site, FY 2007

Passive Soil Vapor Extraction Wells	Reason
299-W18-6L	Groundwater Protection
299-W18-7	Groundwater Protection
299-W18-10L	Groundwater Protection
299-W18-11L	Groundwater Protection
299-W18-12	Groundwater Protection
299-W18-246L	Groundwater Protection
299-W18-247L	Groundwater Protection
299-W18-252L	Groundwater Protection

Attachment 18, Figure 9

Table 3. Sampling and Analysis Plan for Soil Vapor Extraction System Operations, April through September 2008

When to Monitor	on-line wells	off-line wells	vacuum wellhead	flow	CCl4	CHCl3	CH2Cl2	MEK
					carbon tetrachloride	chloroform	methylene chloride	MEK
first day of operations	X		X	X	X	X	X	X
beginning of 2nd week	X	X	X	X	X	X	X	X
beginning of 3rd week	X		X	X	X	X	X	X
beginning of 4th week	X	X	X	X	X	X	X	X
beginning of 5th week	X		X	X	X	X	X	X
beginning of 6th week	X	X	X	X	X	X	X	X
beginning of 7th week	X		X	X	X	X	X	X
beginning of 8th week	X	X	X	X	X	X	X	X
beginning of 9th week	X		X	X	X	X	X	X
beginning of 10th week	X	X	X	X	X	X	X	X
beginning of 11th week	X		X	X	X	X	X	X
beginning of 12th week	X		X	X	X	X	X	X
last day of operations	X	X	X	X	X	X	X	X
Fax copy of monitoring records to 200-PW-1 OU Technical Lead (Virginia Rohay at 376-2344) by close of day following monitoring.								

Table 4. Wells Available for Soil Vapor Extraction System Operations at the 216-Z-9 Site, July through September 2008

Potential On-Line Wells	Reason	Initial Wells
299-W15-6U	Mass removal	
299-W15-6L	Groundwater Protection	
299-W15-8U	Mass removal	
299-W15-8L	Groundwater Protection	
299-W15-9U	Mass removal	X
299-W15-9L	Groundwater Protection	X
299-W15-32	Groundwater Protection	
299-W15-48	Mass Removal	
299-W15-82	Mass removal	X
299-W15-84U	Mass removal	
299-W15-84L	Mass removal	
299-W15-85	Mass removal	
299-W15-86	Mass removal	
299-W15-95U	Mass removal	
299-W15-95L	Mass removal	
299-W15-216U	Mass removal	
299-W15-216L	Groundwater Protection	
299-W15-217	Mass removal	X
299-W15-218U	Mass removal	
299-W15-218L	Groundwater Protection	
299-W15-219U	Mass removal	
299-W15-219L	Groundwater Protection	
299-W15-220U	Mass removal	
299-W15-220L	Groundwater Protection	
299-W15-223	Mass removal	
C4937 (P66D)	Mass removal	
C4938 (P69C)	Mass removal	
C5340 (P68C)	Mass removal	
CPT-11	Mass removal	
CPT-21	Mass removal	

Table 5a. Distribution of Selected Monitoring Locations During Soil Vapor Extraction System Operations at the 216-Z-1A/Z-18/Z-12 Site, April through June 2008

Target Zone	Number of Monitoring Locations		
	Z-1A	Z-9	Total
Near-surface (3-25 m below ground surface)	5	10	14
Cold Creek (25-45 m below ground surface)	0	8	8
Groundwater (50-65 m below ground surface)	8 ^a	5	13
Total	13	23	36

^a Eight available monitoring locations near the vadose/groundwater interface in the Z-1A area are being monitored as part of the passive soil vapor extraction system network.

Table 5b. Distribution of Selected Monitoring Locations During Soil Vapor Extraction System Operations at the 216-Z-9 Site, July through September 2008

Target Zone	Number of Monitoring Locations		
	Z-1A	Z-9	Total
Near-surface (3-25 m below ground surface)	11	3	14
Cold Creek (25-45 m below ground surface)	6	2	8
Groundwater (50-65 m below ground surface)	8 ^a	0	8
Total	25	5	30

^a Eight available monitoring locations near the vadose/groundwater interface in the Z-1A area are being monitored as part of the passive soil vapor extraction system network.

Attachment 18, Figure 12

Table 6a. Non-Operational Wells and Soil Vapor Probes Selected for Monitoring During Soil Vapor Extraction System Operations at the 216-Z-1A/Z-18/Z-12 Site, April through June 2008

Target Zone	Z-9	Depth (m)	Comment	Z-1A	Depth (m)	Comment
near-surface	CPT-17 10 ft (blue)	3	southwest of Z-9	CPT-4E 25 ft (white)	8	north central in Z-1A/Z-18/Z-12 field
near-surface	CPT-16 25 ft (blue)	8	east of Z-9	CPT-13A 30 ft (blue)	10	southeast of Z-1A
near-surface	CPT-27 33 ft (red)	10	southeast of Z-9	CPT-7A 32 ft (yellow)	10	farfield northeast of Z-1A
near-surface	CPT-18 35 ft (blue)	11	northwest of Z-9	CPT-1A 35 ft (black)	11	west of Z-12
near-surface	CPT-9A 60 ft (blue)	18	farfield north of Z-9	CPT-34 40 ft (green)	12	west of Z-18
near-surface	C4937	20	south of Z-9			
near-surface	C4938	20	south of Z-9			
near-surface	C5340	20	south of Z-9			
near-surface	CPT-16 65 ft (red)	20	east of Z-9			
near-surface	CPT-21A 65 ft (green)	20	south of Z-9			
Cold Creek	299-W15-82	25	east side of Z-9			
Cold Creek	CPT-21A 86 ft (red)	26	south of Z-9			
Cold Creek	CPT-28 87 ft (red)	27	farfield south of Z-9			
Cold Creek	299-W15-8U	31	southside of Z-9			
Cold Creek	299-W15-217	35	southwest corner of Z-9			
Cold Creek	CPT-24 118 ft (red)	36	northwest of Z-9			
Cold Creek	299-W15-220 SST/118 ft (red)	36	east of Z-9			
Cold Creek	299-W15-95L	44	north side of Z-9			
ground-water	299-W15-220L 163 ft	50	east of Z-9	299-W18-247L*	51	southeast of Z-18
ground-water	299-W15-219L 175 ft	53	northwest of Z-9	299-W18-246L*	52	west of Z-1A
ground-water	299-W15-84L 180 ft	55	west of Z-9	299-W18-252L*	53	middle of Z-1A/Z-18/Z-12 field
ground-water	299-W15-9L	57	11 m from 299-W15-32 extraction well	299-W18-10L*	55	east side of Z-18
ground-water	299-W15-46	66	southside of Z-9	299-W18-7*	60	east side of Z-1A
ground-water				299-W18-11L*	60	Within Z-18
ground-water				299-W18-12*	60	Within Z-18
ground-water				299-W18-6L*	63	west side of Z-1A

* Passive soil vapor extraction wells

Note: Colors refer to the color coding on the soil vapor probe tubing.

Table 6b. Non-Operational Wells and Soil Vapor Probes Selected for Monitoring During Soil Vapor Extraction System Operations at the 216-Z-9 Site, July through September 2008

Target Zone	Z-9	Depth (m)	Comment	Z-1A	Depth (m)	Comment
near-surface	CPT-28 40 ft (blue)	12	farfield south of Z-9	CPT-32 25 ft (green)	8	west of Z-1A
near-surface	CPT-9A 60 ft (blue)	18	farfield north of Z-9	CPT-4E 25 ft (white)	8	north central in Z-1A/Z-18/Z-12 field
near-surface	CPT-21A 65 ft (green)	20	south of Z-9	CPT-13A 30 ft (blue)	10	southeast of Z-1A
near-surface				CPT-7A 32 ft (yellow)	10	farfield northeast of Z-1A
near-surface				CPT-1A 35 ft (black)	11	west of Z-12
near-surface				CPT-33 40 ft (green)	12	between Z-18 and Z-12
near-surface				CPT-34 40 ft (green)	12	west of Z-18
near-surface				CPT-30 48 ft (blue)	15	north of Z-18 (middle of Z-1A/Z-18/Z-12 field)
near-surface				CPT-C3872 62.5 ft	19	east side of Z-1A
near-surface				CPT-1A 68 ft (yellow)	21	west of Z-12
near-surface				CPT-32 70 ft (red)	21	west of Z-1A
Cold Creek	CPT-21A 86 ft (red)	26	south of Z-9	299-W18-152	31	northwest corner of Z-12
Cold Creek	CPT-28 87 ft (red)	27	farfield south of Z-9	299-W18-167	32	within Z-1A
Cold Creek				CPT-4F 109 ft (red)	33	north central in Z-1A/Z-18/Z-12 field
Cold Creek				299-W18-165	33	within Z-1A
Cold Creek				299-W18-249	40	northeast corner of Z-18
Cold Creek				299-W18-248	40	east side of Z-1A
ground-water				299-W18-247L*	51	southeast of Z-18
ground-water				299-W18-246L*	52	west of Z-1A
ground-water				299-W18-252L*	53	middle of Z-1A/Z-18/Z-12 field
ground-water				299-W18-10L*	55	east side of Z-18
ground-water				299-W18-7*	60	east side of Z-1A
ground-water				299-W18-11L*	60	within Z-18
ground-water				299-W18-12*	60	within Z-18
ground-water				299-W18-6L*	63	west side of Z-1A

* Passive soil vapor extraction wells

Note: Colors refer to the color coding on the soil vapor probe tubing.

Figure 1. Location of Extraction and Monitoring Wells at the 216-Z-1A/Z-18/Z-12 and 216-Z-9 Sites

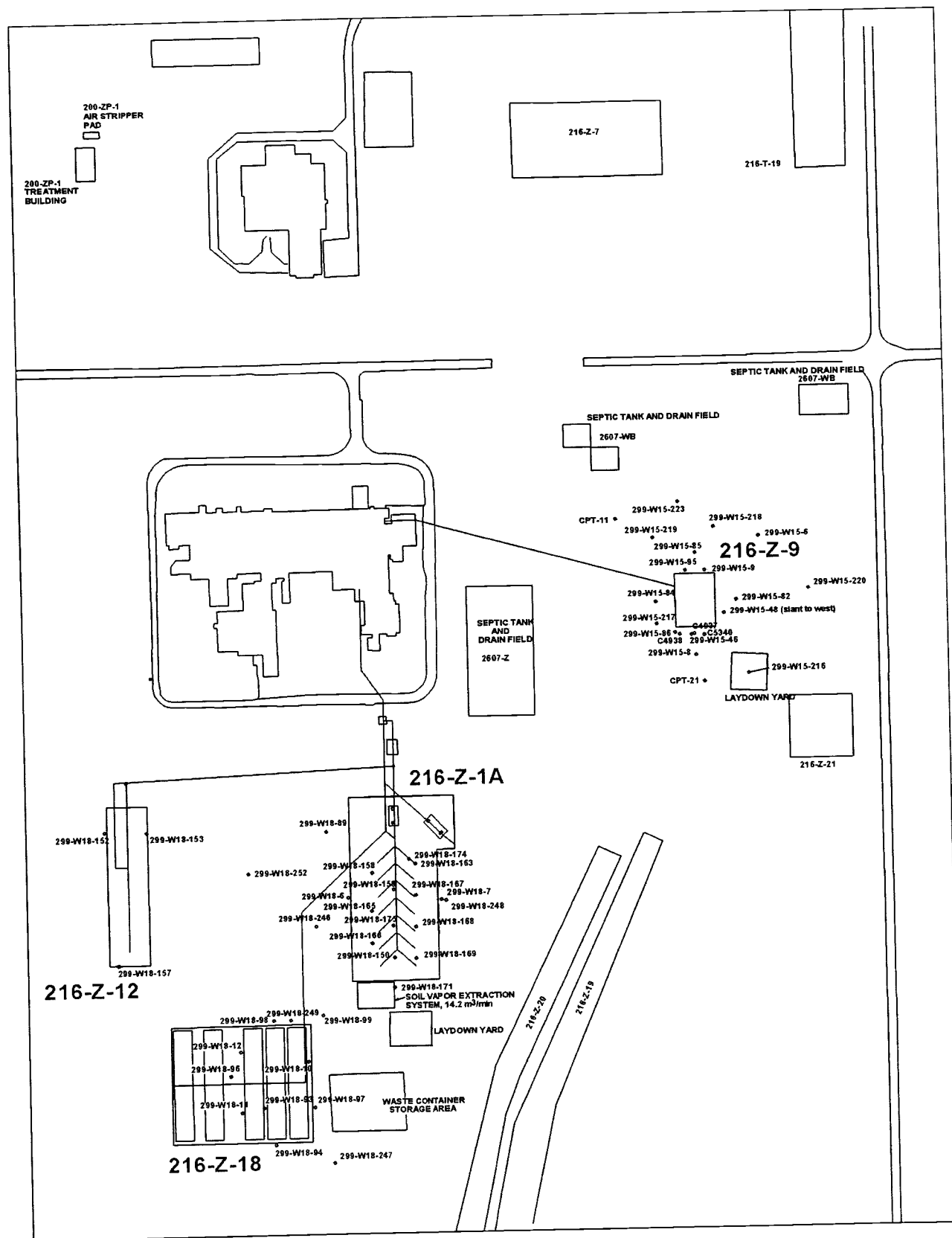


Figure 2. Location of Wells and Soil Vapor Probes Selected for Non-Operational Monitoring and Passive Soil Vapor Extraction Monitoring, April through June 2008

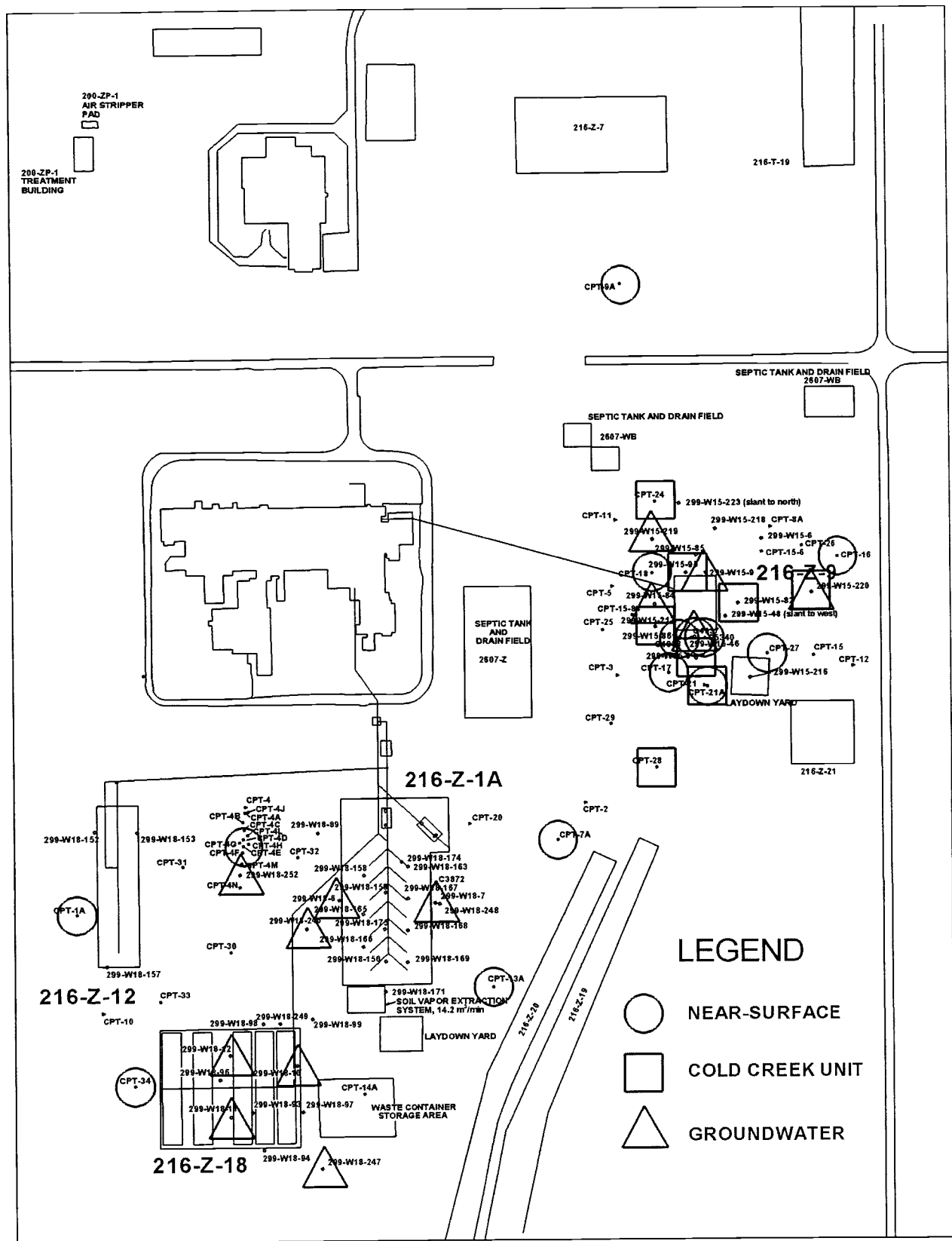
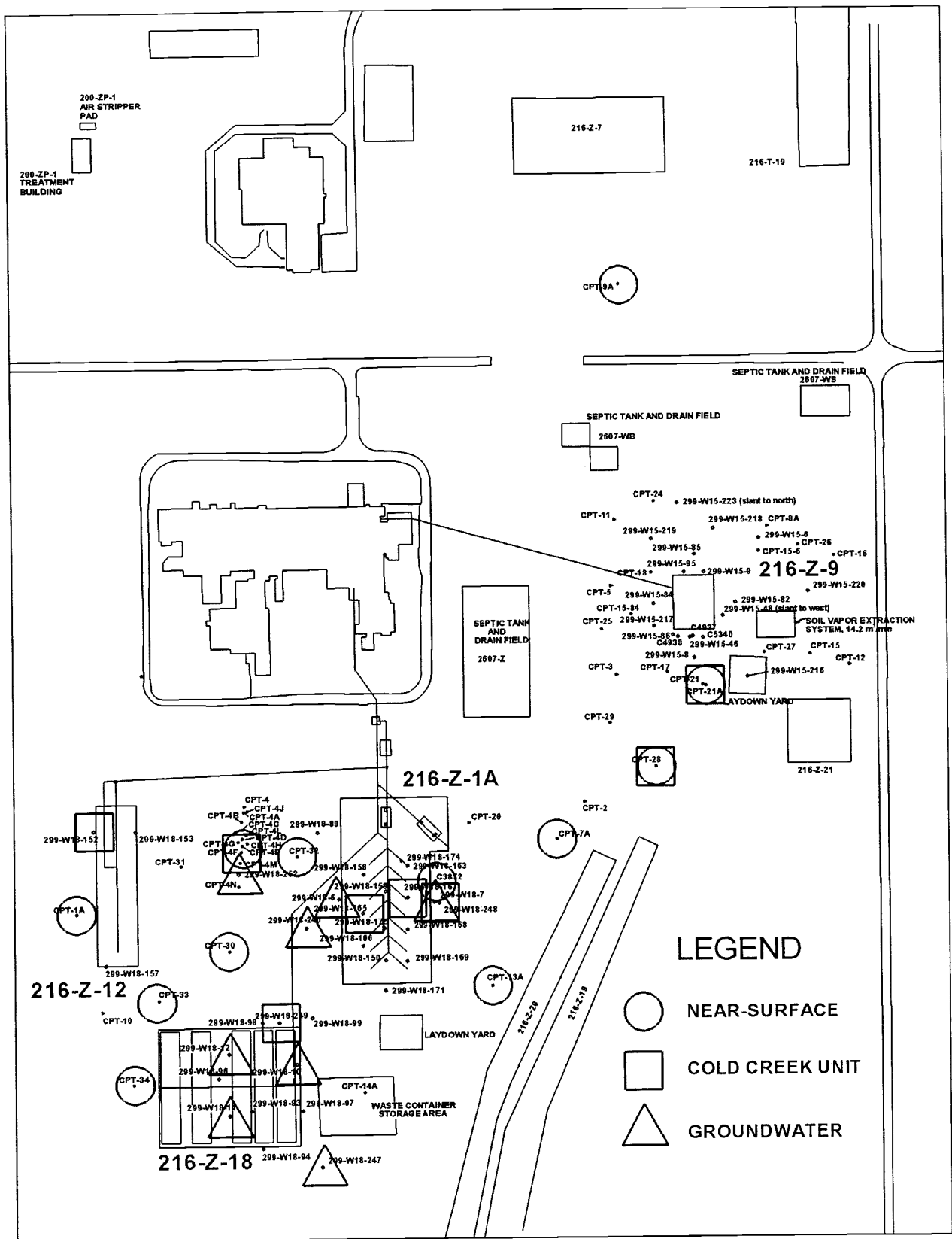


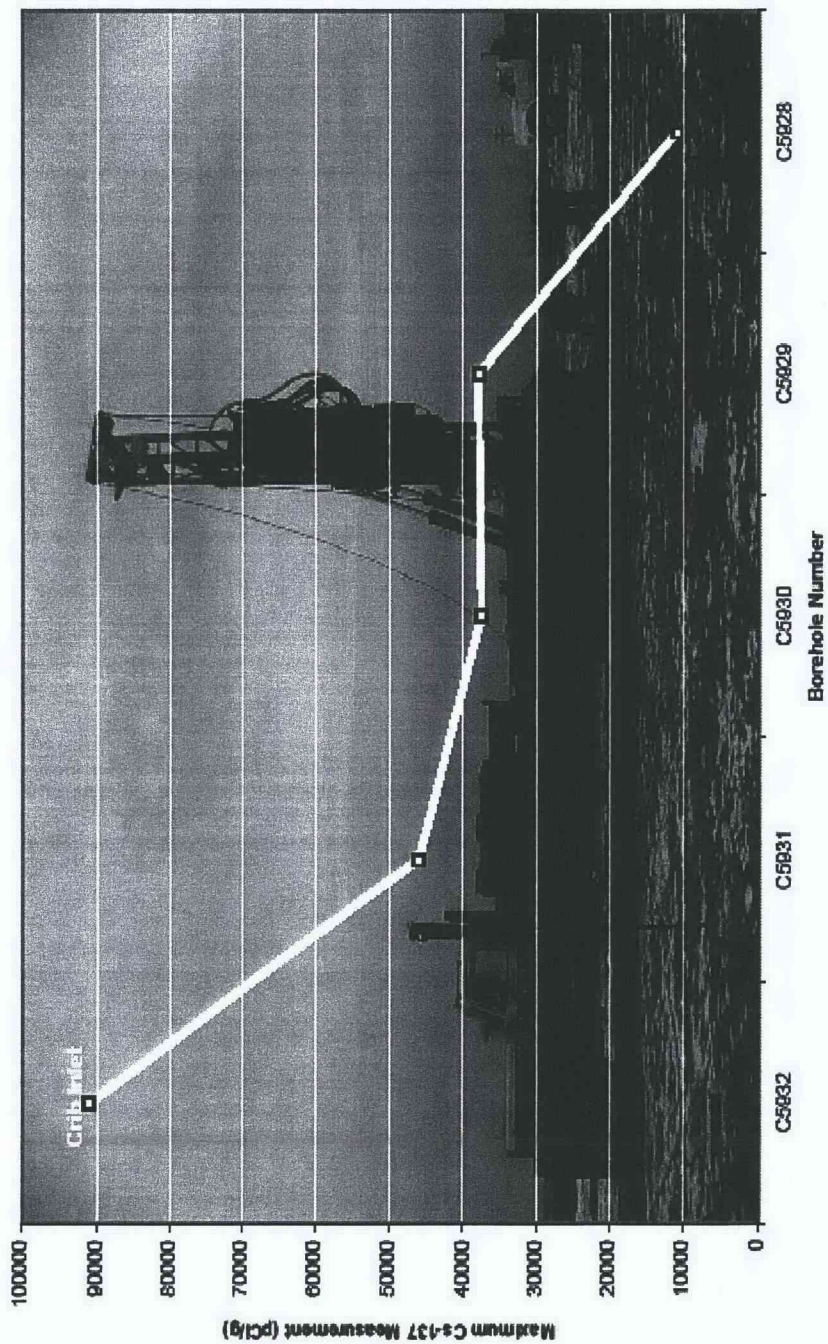
Figure 3. Location of Wells and Soil Vapor Probes Selected for Non-Operational Monitoring and Passive Soil Vapor Extraction Monitoring, July through September 2008



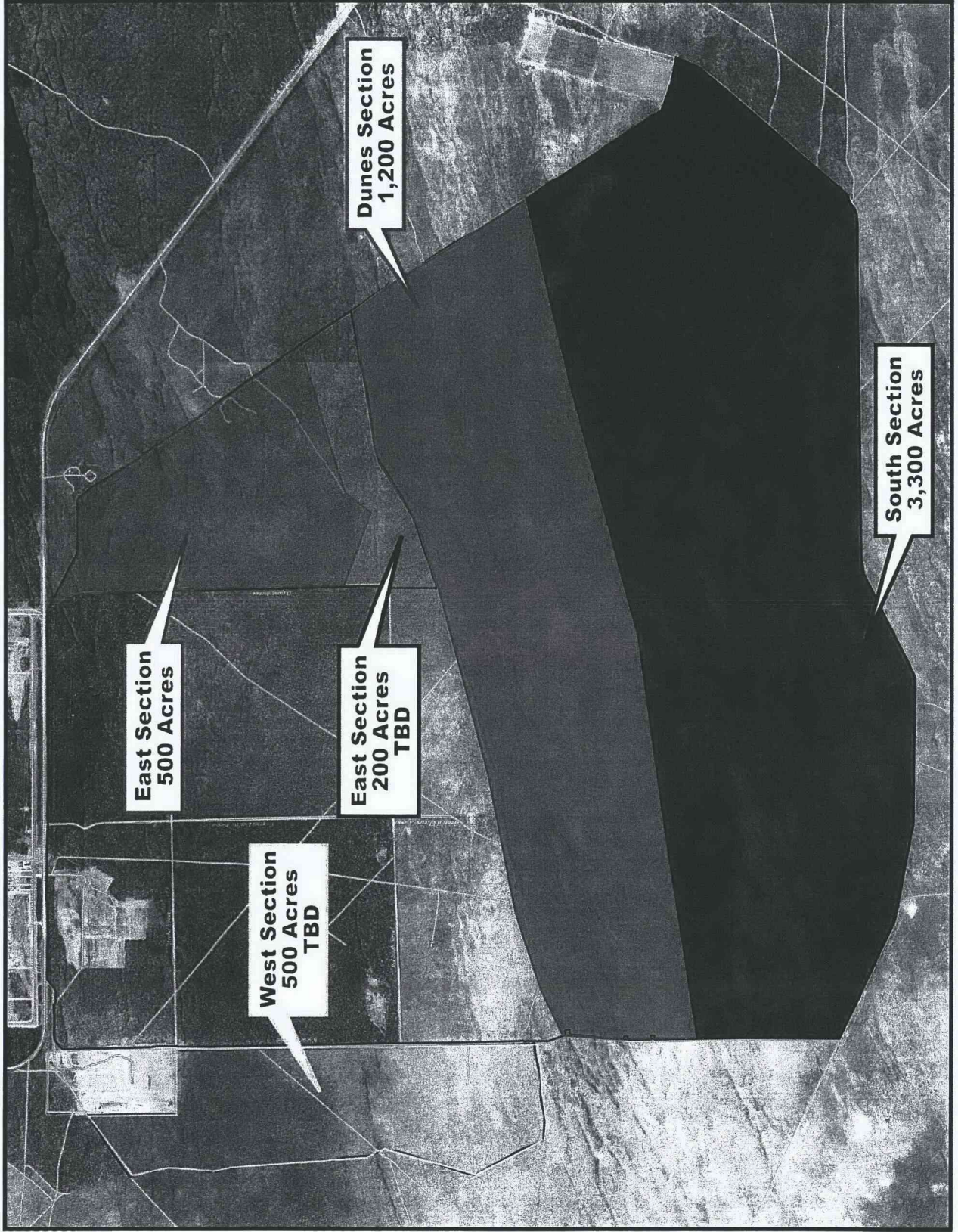
The map illustrates the layout of the 216-B-8 Crib, a large rectangular structure divided into several sections. Key features include:

- Monitoring Points:** Numerous points are marked with dots and labeled, including E33-1 through E33-45, E28-2 through E28-28, E27-10 through E27-17, and E34-2 through E34-5. These points are distributed across the crib and its surroundings.
- Structural Features:**
 - LLWMA 1** and **LLWMA 2** are labeled in the lower-left and upper-right sections, respectively.
 - 216-B-63 Trench** is shown as a dashed line running along the right side of the crib.
 - 216-B-8 Crib** is the main structure, with various sections labeled such as 299-E33-205, 299-E33-342, 299-E33-343, 299-E33-344, 299-E33-345, and 299-E33-346.
- Grid and Lines:** The map features a grid of points and lines representing the crib structure and surrounding areas. Some lines are solid, while others are dashed, indicating different types of boundaries or structures.

216-B-55, Geophysical Logging Maximum Readings



BCCA Downposting



Attachment 23, Figure 1



**Change Notice for Modifying Approved Documents/ Workplans
In Accordance with the Tri-Party Agreement Action Plan,
Section 9.0, Documentation and Records**

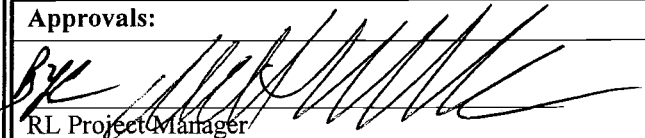
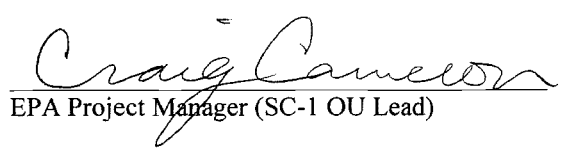
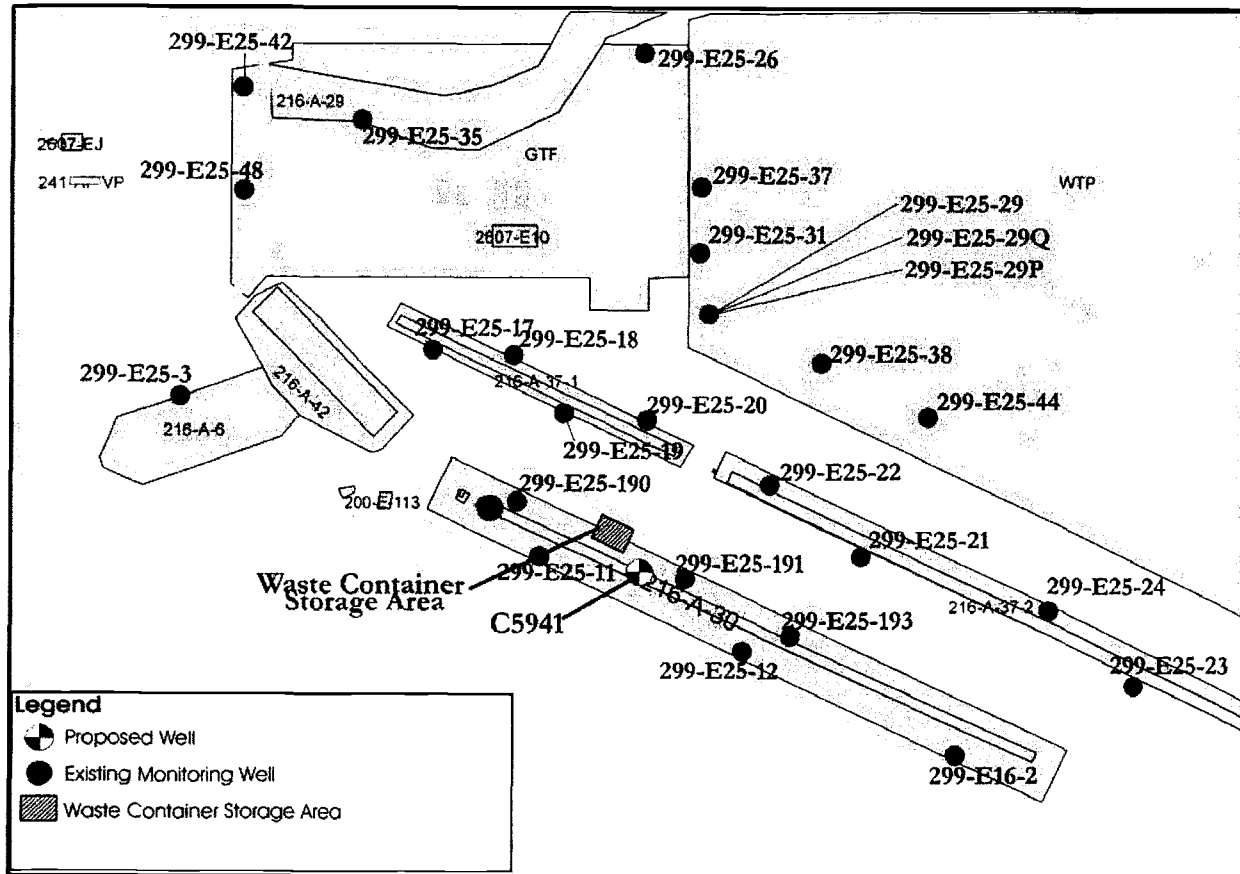
Change Number TPA-CN-209	Document Submitted Under Tri-Party Agreement Milestone N/A	Date: 03/11/08 C.E.C.	
Document Number and Title: SGW-36088, Revision 0, Waste Control Plan for the 200-SC-1 Operable Unit		Date Document Last Issued: January 2008	
Originator: Rick Oldham		Phone: 372-2426 or 521-8633	
Description of Change: Revise Figure 1 to show changed locations for the A-30 borehole and waste container storage area			
<p><u>D.A. Brockman</u> and <u>C. Cameron</u> agree that the proposed change modifies an approved RL Lead Regulatory Agency</p> <p>workplan/document and will be processed in accordance with the Tri-Party Agreement Action Plan, Section 9.0, <i>Documentation and Records</i>, and not Chapter 12.0, <i>Changes to the Agreement</i>.</p> <p>Figure 1, 200-SC-1 Operable Unit, 216-A-30 Crib, and 216-A-37-2 Crib Location Map and Waste Container Storage Area, is revised to show changed locations for the A-30 borehole and associated waste container storage area.</p> <p>Figure 1 is located on page 8 of <i>SGW-36088, Revision 0, Waste Control Plan for the 200-SC-1 Operable Unit</i>.</p>			
Justification and Impacts of Change:			
<p>High resolution resistivity surveys indicate a more optimal location for the A-30 borehole. The borehole location and waste container storage location are adjusted accordingly. These changes will be reflected in the next revision to <i>SGW-36088, Revision 0, Waste Control Plan for the 200-SC-1 Operable Unit</i>.</p>			
Approvals:			
 RL Project Manager	<u>3/11/08</u> Date	<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Disapproved
 EPA Project Manager (SC-1 OU Lead)	<u>3/11/08</u> Date	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Approved	<input type="checkbox"/> Disapproved <input type="checkbox"/> Disapproved

Figure 1. 200-SC-1 Operable Unit, 216-A-30 Crib, and 216-A-37-2 Crib Location Map and Waste-Container Storage Area.



MTCA Remedial Investigation/Feasibility Study

US Ecology Low Level
Radioactive Waste Site
WA State Department of Ecology

Background

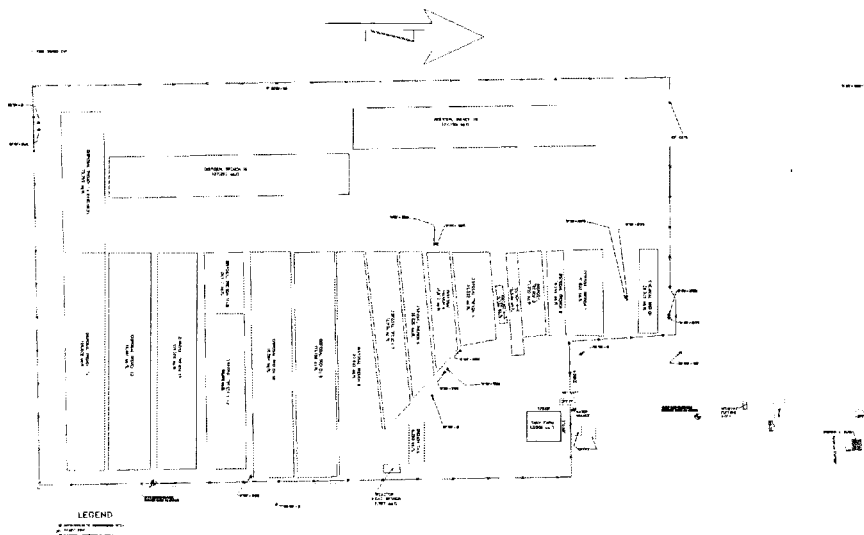
- Site Location and Description
 - Located on 100 Acres of Federally leased land
 - Ecology leases the land from DOE
 - US Ecology Operates the Site
 - Disposes of commercial LLRW from hospitals, laboratories, universities, private industries, & nuclear power facilities
 - Two operational trenches
 - Twenty full trenches

Background

➤ Site Location & Description (cont.)

- WDOH regulates the radiochemical component of US Ecology:
 - Monitoring
 - Corrective Action
 - Radioactive Materials License
- Memorandum of Agreement
 - WDOE and WDOH

Background



Background

➤ History

- 1965: Operations began
 - LLRW and chemical waste
- 1970: Chemical Trench closed
 - Purely chemical waste banned from further disposal
- 1980: Congress passed LLRW Policy
 - Disposal in metal boxes/drums ONLY—no more cardboard
- 1985: Disposal of all RCRA mixed waste ceased
- 1993: Northwest Compact signed
 - Disposal in metal drums—no more metal drums
- 1997: Initiated Draft EIS
- 1998: Initiated Site Investigation
- 2004: Final EIS issued
- 2007: Agreed Order signed
- 2007: Initiated MTCA RI/FS

Previous Investigations

➤ EIS

- DQO issued in 2003
- Final EIS issued in 2004

➤ Agreed Order

- Scope of Work
 - Issued in January 2007
- Contracted with USE to conduct RI/FS in accordance with Agreed Order and DQO

RI/FS Work Scope

➤ Purpose

- To collect sufficient data to establish cleanup levels and select a cleanup action in accordance with WAC 173-340-360 to -390
- The quantity and quality of data collected must ensure the cleanup action complies with WAC 173-340-740(6)(f) for containment as part of the clean up action

RI/FS Work Scope

➤ RI/FS Actions

- Field Sampling
 - Gyroscopic surveys and camera-logging of wells
 - Soil sampling: physical and chemical analysis
 - 148 Soil Samples using HHR
 - Pre-1985 trench area: 138 samples (various depths)
 - Resin Tank Area: 10 samples (shallow depth)
 - Soil gas monitoring in pre-1985 trench area

RI/FS Work Scope

➤ RI/FS Actions

- Long Term Monitoring
 - Duration: 8 consecutive quarters
 - 41 vadose wells
 - 7 groundwater wells
- Reports
 - RI/FS
 - Draft Cleanup Action Plan

Project Schedule

- Field work
 - January 2008 to May 2008
- Long term monitoring
 - May 2008 to April 2010
- Final RI Report
 - July 2010
- Final FFS Report
 - October 2010
- Draft Cleanup Action Plan
 - December 2010

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Public Participation

- Public Participation Plan
 - MTCA Site Register
 - http://www.ecy.wa.gov/programs/tcp/pub_inv/pub_inv2.html
 - Project Web Sites (add web addresses)
 - Public Information Repositories
 - Information Sessions & Public Meetings
 - Summer 2008
 - Public Notices
 - News Releases

Contacts

- Project Manager: Deborah Singleton
- Project Lead: Jennifer Ollero
- Public Involvement: Madeleine Brown
- Hydrology Support: Zelma Jackson
- Chemistry Support: Jerry Yokel
- MTCA Support: Brenda Jentzen
- Risk Assessment Support: Damon Delistraty